| | | | |
|---|---|---|---|
| BECHTEL | Mechanical Handling Data Sheet<br>Top Running, Double Girder | **CM** △4 | Data Sheet No. 24590-HLW-M0D-HSH-00013 Rev. 4<br>Plant Item No. 24590-HLW-MJ-HSH-CRN-00001 |

| | | | |
|---|---|---|---|
| Project | RPP-WTP | Description | Melter 1 Cave Main Crane |
| Project No. | 24590 | Supporting Calculation No. | N/A |
| Planning Area | | Associated Drawing No. | N/A |
| System No. | HSH | Associated Specification No. | 24590-WTP-3PS-MJKG-T0003 |
| Building No. | 30 | Associated MR No. | 24590-QL-MRA-MJKG-00002 |
| Quality Level | ▶ CM △4 | Associated MHD No. | 24590-HLW-M7-HSH-00001002 |
| Seismic Category | SC-II | | |
| Function | Melter Cave 1 Support | | |

R10704043

ISSUED BY RPP-WTP PDC

| DESIGN CRITERIA | | | |
|---|---|---|---|
| Design Life | 40 years | Safety Classification | ▶ APC △4 |

| OPERATING ENVIRONMENT | | | In-Cave Rm # H-0117 | | CMA Rm # H-0309 | | List All Special Conditions |
|---|---|---|---|---|---|---|---|
| | | | Min | Max | Min | Max | |
| Temperature | | deg F | 59 | 113 | 59 | 113 | TID is derived using maximum local exposure assumed full time, ie multiplied by 24x365x40 |
| Relative Humidity | | % | 0 | 70 | 0 | 70 | |
| Radiological | gamma | rad/ 40 yrs | ▶ 7.0*E+6 TID △4 | | ▶3.5*E+3 △4 | | |
| | neutron | rad/ 40 yrs | Negligible | | Negligible | | |
| Radiological Classification | | | R5 | | ▶R3 △4 | | |
| Contamination Classification | | | C5 | | ▶C3 △4 | | |

| CRANE REQUIREMENTS | | | |
|---|---|---|---|
| Type of Crane | Top Running Double Girder Electric Overhead Traveling Crane | | |
| Service Information | CMAA 70-2000, Class E | Capacity | 25 Ton |
| Crane Operation Indoors? | Yes, In-Cave | Main Hoist | 25 Ton |
| Material Handled | Melter Cave Components | Auxiliary Hoist | N/A |
| Class Information | Class E | Trolley | 25 Ton |
| No. of Cranes Required | 1 | Bridge | 25 Ton |
| ASCE Rail Type | 175 lb/yd | | |
| Max Wheel Load | 42,000 lbs | | |

| OPERATING CHARACTERISTICS AND FREQUENCY OF MOVEMENT | | | |
|---|---|---|---|
| Hoist- Range of Lift | 41'-9" | No. lifts/day | 1 |
| Average Moves - Bridge | 1/2 Runway Length | Moves/day | 1 |
| Average Moves - Trolley | 3/4 Bridge Length | Moves/day | 1 |

| CRANE DIMENSIONS AND ELEVATIONS | ft - in. |
|---|---|
| Lowest Obstruction Elevation | 52'-0" |
| Uppermost bridge feature △4 | ▶ (47'-7" MAXIMUM) BY VENDOR |
| Bridge Rail Elevation | 45'-1" |
| Lowest Point of Crane Elevation | 44'-10" |
| High Hook Elevation | 44'-9" |
| Low Hook Elevation | 3'-0" |
| Side Approach - hoist center line to West Rails | 3'-9" MAXIMUM |
| Side Approach - hoist center line to East Rails | 3'-9" MAXIMUM |
| Distance from Grid line "14" to Inside face of West Wall △4 | ▶ 7'-7" (REF) - SEE SKETCH (pg 3) |
| Distance from hoist center line to end-truck South bumper | 5'-0" MAXIMUM |
| Distance from hoist center line to end-truck North bumper | 6'-6" MAXIMUM |
| Distance from hoist center line to In-Cave South Wall △4 | ▶ 6'-9" MAXIMUM (REF) |
| Distance from hoist center line to CMA North Wall | 10'-6" MAXIMUM (REF) |
| Distance from Grid Line "L" to inside face of South Wall △4 | ▶ 13'-0" |
| Total distance between inside wall faces of CMA and Cave | 131'-10" (REF) |
| Runway Rails Span | 34'-4" |

| Date | REV | Revisions | By | Checked | Supervisor | Approved |
|---|---|---|---|---|---|---|
| 8/10/06 | 4 | See note 17 | N J Darwen | A. Whitford | P. Snider | D. Wilsey |
| 02/09/05 | 3 | See note 13 | Matt Robinson | Andy Whitford | Phil Snider | Dave Wilsey |
| 09/08/03 | 2 | See note 15 | Andy Whitford | Lawrnel Harrison | Grant Marr | Dave Wilsey |
| 11/27/02 | 1 | See note 14 | David Horton | Paul Carter | Joni Weamer/ Jim | Dave Wilsey |
| 02/26/02 | 0 | Issued for Procurement | Joeseph Roach | Andy Whitford | Jim Brower | Dave Wilsey |

| Mechanical Handling Data Sheet<br>Top Running, Double Girder | Data Sheet No.<br>24590-HLW-M0D-HSH-00013 | Rev.<br>4 |
|---|---|---|
| | Plant Item No.<br>24590-HLW-MJ-HSH-CRN-00001 | |

## DRIVE TYPE SPEED AND HORSEPOWER

| | | | | Nominal Speed (ft/m): | |
|---|---|---|---|---|---|
| Drives | Drive Type | Speed | Horsepower | Slow | Fast |
| Main Hoist Drive Type | Flux Vector | Variable 0 - 25 | 30 HP | 5 | 20 |
| Recovery Hoist Drive Type | Single Speed | Single Speed | 15 HP | 4 | |
| Main Bridge Drive Type | VFD | Variable 0 - 50 | 4 HP | 5 | 50 |
| Recovery Bridge Drive Type | Single Speed | Single Speed | 1 HP | 5 | |
| Main Trolley Drive Type | VFD | Variable 0-25 | 1.5 HP | 5 | 25 |
| Recovery Trolley Drive Type | Single Speed | Single Speed | 0.75 HP | 5 | |
| Powered Hook | DC Motor | Fixed | 0.05 HP | 1-2 | |

## CONDUCTOR TYPE

| | |
|---|---|
| Bridge | Cable Reel |
| Trolley | Cable Track |

## CONTROLS

| | |
|---|---|
| Method of Control | Integrated control network (remote) or panel pushbuttons (local) |
| Location of Control | Operating corridor or facility control room (remote) or panel (local) |
| Type of Control Enclosure | NEMA 4X or IP 66 |

## ELECTRICAL REQUIREMENTS

| | |
|---|---|
| Item | Volts / Phase / Hertz |
| Motor | 480 VAC / 3 Phase / 60 HZ |
| | |
| Special Wiring Conditions | National Electric Code |

## MAINTENANCE REQUIREMENTS

| | |
|---|---|
| Construction | Modular for ease of assembly / dismantling |
| Modularization | Heaviest modular item (excludes bridge beams and end trucks) shall be < 5 tons. |
| Retrieval | Crane must be retrievable |
| Decontamination | Crane-mounted equipment to withstand occasional washdown during decontamination. |

## ADDITIONAL REQUIREMENTS

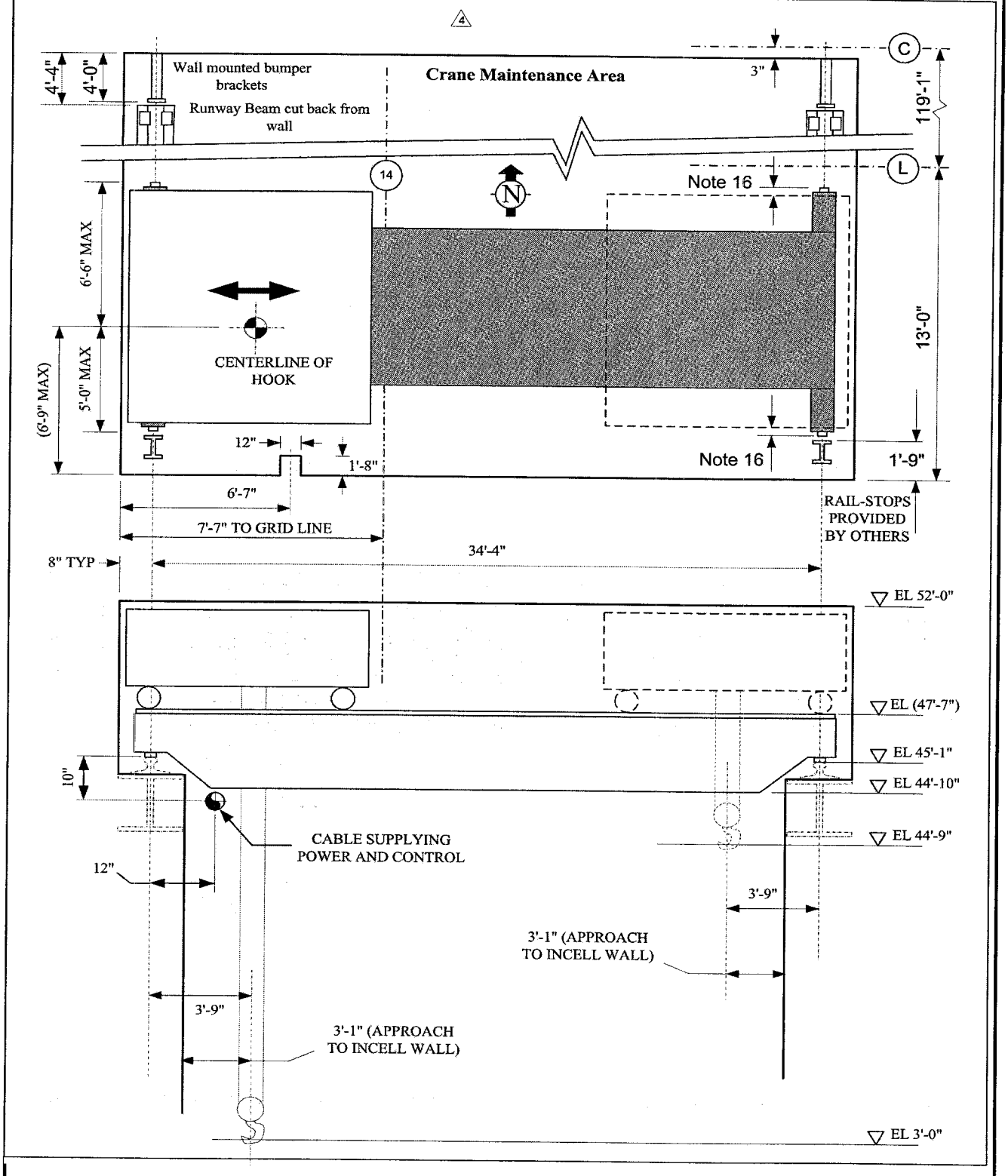
1. Crane-mounted motors, electrical cabinets, etc. to be sealed to withstand occasional washdown during decontamination.
2. Deleted
3. All cranes shall be designed to allow operator positioning to within +/- 3/8".
4. Deleted
5. Must be able to hold and control suspended payload without mechanical braking for sustained periods.
6. Deleted
7. Deleted
8. Power supply is required at hook for crane held tools.
9. Motor horsepower estimated for plant electrical load sizing. Seller to provide.
10. This drawing provided basic outlines, design objectives, and bounding dimensions to contracted design or fabrication supplier(s) and shall not be used to confirm the as built WTP structure, system or component identified herein. See vendor information for final configuration provided in conformance to purchase order 24590-QL-POA-MJKG-00002.
11. The crane will infrequently be subject to operating temperatures near 150°F for up to 12 hours.
12. The full range of hoist speed is not required for all loads.
13. Revision 3 removed calculation reference, symbols column, shield door corner obstruction information, duplicate "range of lift" dimension, gridline distance requirements, and several notes; changed outcell room name, units of dose, outcell room contamination and radiation classification, capacity, range of lift, uppermost bridge feature callout, bridge rail elevation, lowest point of crane, low hook elevation, side approaches, end approaches, maximum crane dimensions, hoist speeds, and several notes; and added MHD reference, rail type, and maximum wheel load.

► 14. Revision 1 changes: Changed additional requirements, drives, and description 4

► 15. Revision 2 changes: Revised based on 24590-HLW-DCA-PL-03-002 Rev 0, and editorial changes. Changed recovery drive type; was VFD 4

► 16. Trolley may not extend past fully compressed end truck bumper. 4

► 17. Revised sketch on page 3, changed Safety Classification from SDS to APC; Quality Level changed from QL to CM 4 and revised environmental conditions 4


4
Wall mounted bumper brackets
Runway Beam cut back from wall
Crane Maintenance Area
4'-4"
4'-0"
3"
C
119'-1"
L
14
N
Note 16
6'-6" MAX
CENTERLINE OF HOOK
(6'-9" MAX)
5'-0" MAX
13'-0"
12"
1'-8"
Note 16
1'-9"
6'-7"
7'-7" TO GRID LINE
RAIL-STOPS PROVIDED BY OTHERS
8" TYP
34'-4"
EL 52'-0"
EL (47'-7")
EL 45'-1"
EL 44'-10"
EL 44'-9"
10"
CABLE SUPPLYING POWER AND CONTROL
12"
3'-9"
3'-1" (APPROACH TO INCELL WALL)
3'-9"
3'-1" (APPROACH TO INCELL WALL)
EL 3'-0"