BECHTEL	**Mechanical Handling Data Sheet** Top Running, Double Girder	CM 3	Data Sheet No. 24590-HLW-M0D-HDH-00021 Plant Item No. 24590-HLW-MJ-HDH-CRN-00005 — Rev. 3

Project	RPP-WTP	Description	Decontamination Swabbing and Monitoring Crane
Project No.	24590	Supporting Calculation No.	N/A 3
Planning Area		Associated Drawing No.	N/A
System No.	HDH	Associated Specification No.	24590-WTP-3PS-MJKG-T0003
Building No.	30	Associated MR No.	24590-QL-MRA-MJKG-00002
Quality Level	▶CM 3		
Seismic Criteria	SC-II		
Function	Canister Handling and Maintenance Activities		

R10704039

ISSUED BY RPP-WTP PDC

DESIGN CRITERIA

Design Life	40 years	Safety Classification	3 ▶APC

OPERATING ENVIRONMENT			In-Cave Rm # H-0133		Out-Cave Rm # H-313A		List All Special Conditions
			Min	Max	Min	Max	
Temperature		deg F	59	113	59	113	
Relative Humidity		%	0	70	0	70	
Radiological Equip. Dose	gamma	mrad/hr	▶4.0*E+4 3		▶100 3		
	neutron	mrad/hr	Negligible		Negligible		
Radiological Classification			▶R3/R5 3		▶R3/R5 3		
Contamination Classification			C3		▶C3 3		

CRANE REQUIREMENTS

Type of Crane	Top Running Double Girder Electric Overhead Traveling Crane		Tons
Service Information	CMAA 70-2000, Class E	Capacity	6 Ton
Crane Operation Indoors?	Yes, In-Cave	Main Hoist	6 Ton
Material Handled	Canisters and Ancillary Equipment	Auxiliary Hoist	N/A
Class Information	Class E	Trolley	6 Ton
No. of Cranes Required	1	Bridge	6 Ton
ASCE Rail Type or Beam Size	▶ 104 lb/yd Crane Rail 3		

OPERATING CHARACTERISTICS - FREQUENCY OF MOVEMENT

Hoist- Range of Lift	(F) - (G)	No. lifts/day	6
Average Moves - Bridge	1/2 Runway Length	Moves/day	12
Average Moves - Trolley	3/4 Bridge Length	Moves/day	6

CRANE DIMENSIONS AND ELEVATIONS	Symbol	ft - in.
Lowest Obstruction Elevation	(A)	46-6"
Shield Door Corner Obstruction Elevation	(B)	46'-0"
Trolley Rail Elevation	(C)	41'-11" NOMINAL
Bridge Rail Elevation	(D)	40'-3.5"
Lowest Point of Crane Elevation	(E)	39'-9"
High Hook Elevation	(F)	38'-6"
Low Hook Elevation	(G)	-9'-0"
Side Approach - hoist center line to West Rails	(H)	3'-4"
Side Approach - hoist center line to East Rails	(I)	3'-4"
Distance from Grid line "17" to Inside face of West Wall	(J)	-1'-9"
Distance from hoist center line to end-truck South bumper	(K) 3	▶5'-9"
Distance from hoist center line to end-truck North bumper	(L) 3	▶7'-2"
Distance from hoist center line to In-Cave South Wall	(M) 3	▶5'-9"
Distance from hoist center line to CMA North Wall	(N) 3	▶7'-2"
Distance from Grid Line "R" to inside face of South Wall	(0)	0'-8"
Total distance between inside wall faces of CMA and Cave	(P)	107'-0"
Range of Lift	(R)	47'-6"
Runway Rails Span	(S)	9'-8"
Shield Door Corner Obstruction	(T)	0'-6"

Date	REV	Revisions	By	Checked	Supervisor	Approved
8/10/06	3	See note 13	N J Darwen	A. Whitford CT	P. Snider SLW	D. Wilsey FOR
09/08/03	2	See note 12	A. Whitford	L. Harrison	G. Marr	D. Wilsey
11/27/02	1	See note 11	David Horton	Paul Carter	Joni Weamer/ Jim Brower	Dave Wilsey
02/26/02	0	Issued for Procurement	Joeseph Roach	Andy Whitford	Jim Brower	Dave Wilsey

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Mechanical Handling Data Sheet

Top Running, Double Girder

Data Sheet No.	
24590-HLW-M0D-HDH-00021	
Plant Item No.	Rev.
24590-HLW-MJ-HDH-CRN-00005	3

DRIVE TYPE SPEED AND HORSEPOWER

Drives	Drive Type	Speed	Horsepower		Slow	Fast
Main Hoist Drive Type	Flux Vector	Variable 0 - 25	12 HP	Nominal Speed (ft/m):	5	25
Recovery Hoist Drive Type	Single Speed	Single Speed	7 HP	Nominal Speed (ft/m):	5	
Main Bridge Drive Type	VFD	Variable 0 - 50	4 HP	Nominal Speed (ft/m):	5	50
Recovery Bridge Drive Type	Single Speed	Single Speed	1 HP	Nominal Speed (ft/m):	5	
Main Trolley Drive Type	VFD	Variable 0-25	1.5 HP	Nominal Speed (ft/m):	5	25
Recovery Trolley Drive Type	Single Speed	Single Speed	0.75 HP	Nominal Speed (ft/m):	5	
Powered Hook	DC Motor	Fixed	0.05 HP	Nominal Speed (rpm):	1-2	

CONDUCTOR TYPE

Bridge	Cable Reel
Trolley	Cable Track

CONTROLS

Method of Control	Manual
Location of Control	Dedicated Crane Control Room/ Window Station/ Crane Maintenance Area
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 except bridge beams / end trucks / must be < 5 tons.
Retrieval	Crane must be retrievable / Hoist must be retrievable
Decontamination	Crane and hoist needs to be decontaminable and minimize cracks and crevices that can trap debris

ADDITIONAL REQUIREMENTS (NOTES):

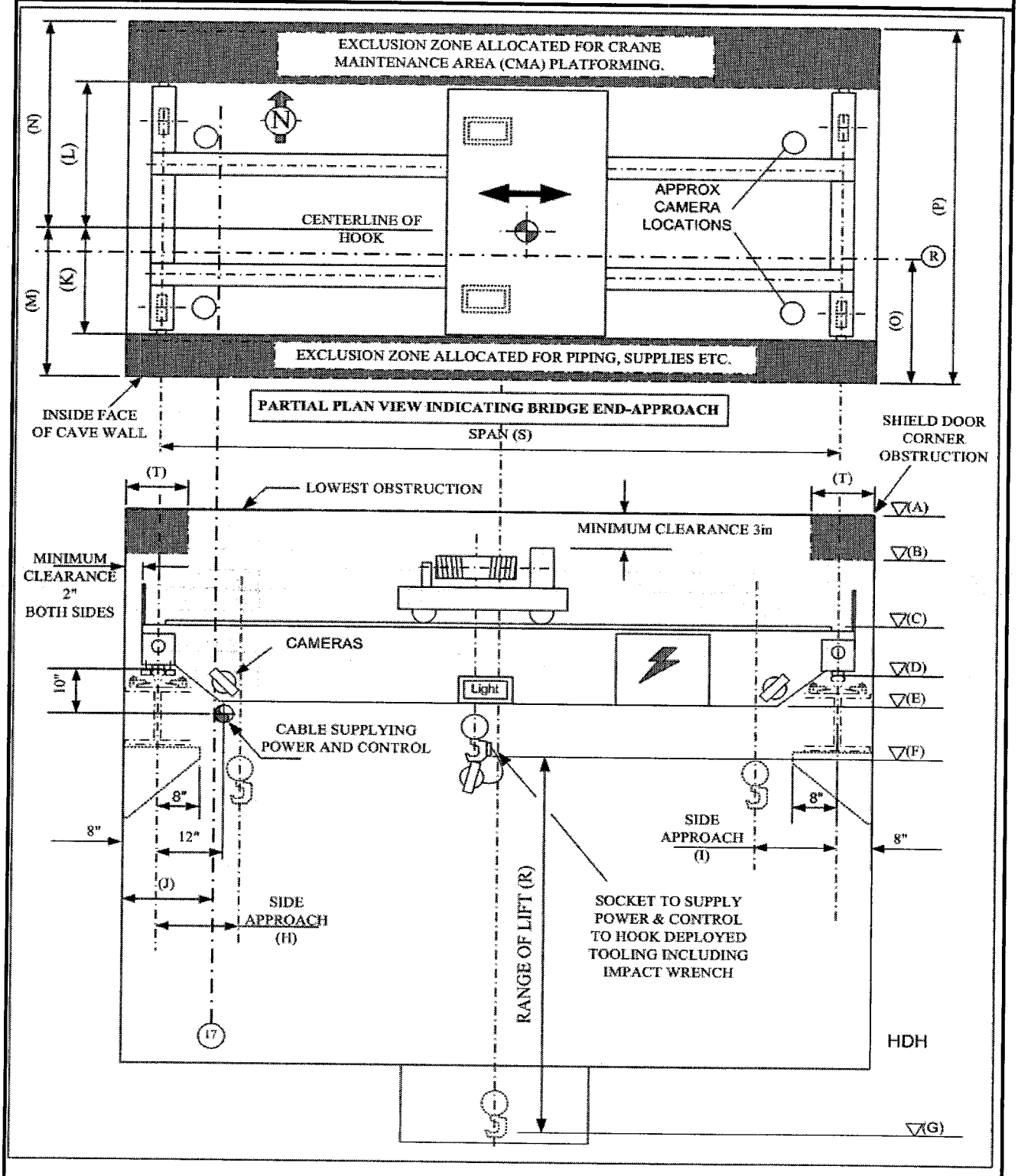
1. Motors and electrical cabinets etc. to be sealed to withstand occasional washdown during decontamination.
2. Four crane mounted cameras capable of pan, zoom, iris and tilt and one hook deployed camera including lighting, pan, tilt, zoom and iris to view cave floors. The Buyer supplies the cameras, Seller provides mounts.
3. All cranes shall be designed to allow operator positioning to within +/- 3/8".
4. Two crane mounted lights as well as light supplied by cameras.
5. Must be able to hold and control suspended payload without mechanical braking for sustained periods.
6. Must not drop load during any single random or common mode electrical failure.
7. Must be recoverable by remote means after any specified single random or common mode failure by use of redundant drives in conjunction with cable reel where necessary.
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 QL-POA-MJKG-00002.

►11. Revision 1 changes: Changed additional requirements, number of lifts per day, drives, and description 3

►12. Revision 2 changes: Revised based on IAW 24590-HLW-DCA-PL-03-002 Rev 0 and editorial changes. Changed recovery drive type; was VFD. Added note to sketch on configuration. 3

► 13. Revision 3 changes: Safety Classification changed to APC; Quality Level changed to CM; Calc ref deleted; Dimension K & M ammended to include bumper extensions that allow bumpers to engage on cave wall, IAW 24590-HLW-ACA-M-05-00031 3

Please note that source, special nuclear, and byproduct materials, as defined in the Atomic Energy Act of 1954 (AEA) are regulated at the U. S. Department of Energy (DOE) facilities exclusively by DOE acting pursuant to its AEA authority. DOE asserts that pursuant to AEA, it has sole and exclusive responsibility and authority to regulate source, special nuclear, and byproduct materials at DOE-owned nuclear facilities. Information contained herein on radionuclides is provided for process description purposes only.


EXCLUSION ZONE ALLOCATED FOR CRANE MAINTENANCE AREA (CMA) PLATFORMING.
N
(N)
(L)
(M)
(K)
CENTERLINE OF HOOK
APPROX CAMERA LOCATIONS
(P)
(R)
(O)
EXCLUSION ZONE ALLOCATED FOR PIPING, SUPPLIES ETC.
INSIDE FACE OF CAVE WALL
PARTIAL PLAN VIEW INDICATING BRIDGE END-APPROACH
SPAN (S)
SHIELD DOOR CORNER OBSTRUCTION
(T)
LOWEST OBSTRUCTION
MINIMUM CLEARANCE 3in
(A)
(B)
(C)
(D)
(E)
(F)
(G)
MINIMUM CLEARANCE 2" BOTH SIDES
CAMERAS
10"
Light
CABLE SUPPLYING POWER AND CONTROL
8"
12"
(J)
SIDE APPROACH (H)
SIDE APPROACH (I)
RANGE OF LIFT (R)
SOCKET TO SUPPLY POWER & CONTROL TO HOOK DEPLOYED TOOLING INCLUDING IMPACT WRENCH
17
HDH