

**BHEL::HYDERABAD**

**M&S-P&C DEPARTMENT**

**TENDER REF.M&S/P&C/2019/79 DT.02/12/2019**

**NAME OF WORK:INSPECTION OF LIFTING MACHINES & LIFTING TACKLES**

**SCOPE OF WORK**

1. Inspection and Certification of Lifting machines by a competent person as certified by the Chief Inspector of Factories, as per section 29 of Factories act 1948 and rule 55, rule 55-A of Telangana Factories rules. Qty. of Lifting machines to be tested are as per PO.
2. Inspection/examination and testing shall be done-as per section 29 of the factories law in Telangana and rule 55-A of *TELANGANA FACTORIES RULES*.
3. Certificates should be issued for the crane inspected and deemed fit for use only. (Hard copies as well as soft copy to be provided for all such cranes should include asset no., date of inspection, validity of certificate etc.)
4. Certificate to be submitted in form-38 format as per rule-55, rule-55A of Factories Act for each Lifting Machine.
5. Contractor needs to submit two hard copies in Form 38 format (one original and one xerox copy) for each certified lifting machine and one soft copy (arranged block wise) in pen drive to M&S Cranes section. Note that pen drive is non-returnable.
6. Inspection of Lifting machines need to be carried out as per IS 14473 – 1997 and BHEL provided inspection protocols.
7. List of cranes to be inspected is as per list attached in this document (Qty. 256 nos.)

***Check list:***

1. **Inspection of wire rope** (full length i.e., hook block to rope drum including rope clamps)
  - a) Broken wires/strands
  - b) Stretching/kinks
  - c) Rope anchorage
  - d) Core damage
  - e) Lubrication
2. **Hook block**
  - a) Condition of pulley
  - b) Hook
  - c) Pulley covers
  - d) Movement of Hook (bearings condition)
  - e) Safety latch
3. **Brakes:** Function of brakes (all motions)
4. **LT & CT Wheel:** observation of free movement, sound alignment
5. **General checking:** all drives
6. Display boards of rated **capacity** (available or not)
7. **Limit switches** – working or not working to be stated in report.
8. **Crane operations** (RRC, Pendant and Cabin operation)

9. **General structure** checking – for any cracks, loose welding, broken pieces, .etc
10. **Lubrication** – Gearboxes, wire rope, .etc

**Terms:**

1. Inspection of Lifting machines to be carried out as per relevant standards and guidelines provided in section 29 of Factories act and rule 55, rule 55-A of Telangana Factories rules.
2. An initial Inspection Report in format provided by BHEL to be submitted to M&S Crane Dept. for each crane inspected.
3. On the basis of this report, BHEL will rectify pending points (if any).
4. Only after verification by competent person of such repair/rectification work, a test certificate to be issued for that crane.
5. Test certificates should be **valid for one-year period** from the date of inspection.
6. Contract will be operated on unit rate only in particular grouping of double hook or single hook.
7. Contractor should provide all kinds of measuring, testing tools and general tools.
8. Contractor must engage sufficient skilled technician.
9. Daily report should be submitted to crane section in-charge.
10. Contractor has to meet production in-charges and inspect the machines on - as where is condition.
11. Contractor should tie/replace if older one already existing, **a tag** indicating the crane is certified (showing crane details- Asset no, date tested and date valid upto, certifying agency etc.) to crane in such a way that it is not easily damaged, but easily accessible for checking (or in a way as specified by M&S cranes executive.).

**NOTE :** Inspection of 2% extra lifting machines above estimated qty. to be done at no extra cost to BHEL ( which were added during testing year)

**Safety :**

1. Contractor shall provide personnel protection equipment to all workmen and ensure proper usage at site work and should follow/comply BHEL safety dept. guidelines.

## **LIFTING TACKLES**

### **Scope of work**

1. The examination and testing should be carried out as per relevant standards and guidelines provided in section 29 of Factories act and rule 55, rule 55-A of Telangana Factories rules.
2. Certificates to be issued only for lifting tackles deemed fit for use after inspection.
3. Contractor should make a list containing details of all lifting tackles including rejected lifting tackles and hand over such a list to M&S-Cranes supervisor. (2 copies)
4. All the equipment/methodology for testing shall be adopted on the basis of competency issued.
5. Testing Procedure
  - Visual checking, any measurements required using appropriate instruments (like Vernier, measuring tape etc.)
  - Magnifying glass usage wherever required.
6. Any lifting tackle having no identification number needs to be inspected & tagged by contractor using means as mentioned below:
  - Wire rope slings need to be tagged using an MS washer of appropriate thickness with unique serial number, Dia. x Length and SWL value punched on the it.
  - Synthetic slings can also be marked similarly as above. However, the tags should mention the following information: Serial no., SWL and Length of sling.
  - Dee-shackles, bow shackles, chain slings & Swivel hoist rings are to be engraved with relevant information as per M&S Cranes Dept. executive.
7. Tentative qty. of lifting tackles as below (Total qty. 5246):
  - a. Wire Rope Slings (dia. 6 to 64 mm, length 1 to 16 Meters)-4507 Nos.
  - b. Synthetic slings (SWL 1T to 50 Tonnes)-641 Nos.
  - c. Chain Slings (1 Ton to 10 Tonnes)-22 Nos.
  - d. Bow shackles and Dee shackles-32 Nos.
  - e. Swivel hoist rings-44 Nos.

**NOTE :** Inspection of upto 5% extra no. of lifting tackles will bear no extra cost to BHEL.

8. Contractor needs to submit two hard copies in Form38 format (one original and one xerox copy) for each certified lifting tackle and one soft copy (arranged block wise) in pen drive to M&S Cranes section. Note that pen drive is non-returnable. Rejected sling list need to be submitted separately

**Check list:**

Contractor need to submit a checklist for each type of lifting tackle containing details such as type of defect, rejection criteria, reference standards etc., before start of work compulsorily.

**Terms:**

1. Certificate to be submitted in form-38 format as per rule-55,rule-55A of Factories act for Lifting Tackle deemed fit for use after inspection
2. Test certificates should be valid for one-year period from date of inspection.
3. Contract shall be operated on unit rates only for each grouping of tackles.
4. Contractor should provide all kinds of measuring, testing tools and general tools(engraving machine etc.) while carrying out inspection.
5. Contractor must engage sufficient skilled personnel to carry out work in allotted time.
6. BHEL will ensure that all lifting tackles are offered for inspection in a centralised location in a bay for each shop. Contractor needs to visit each shop one day prior to commencement of inspection in respective shop as part of planning.
7. Contractor needs to hand over test certificates along with list of lifting tackles for each shop to the respective shop technology executive and submit a receipt of acknowledgment after hand over of certificates to M&S Crane Dept.
8. Inspection of Lifting Tackles need to be carried out with reference to standards mentioned below:
  - a. Inspection of steel wire rope slings as per IS 12735: 1994, Section 5.
  - b. Inspection of synthetic slings as per ASME B30.9 :2014, Section 9-5.9/IS 5175:1992.
  - c. Inspection of chain slings as per ASME B30.9: 2014, Section 9-1.9/IS 2760:1980.
  - d. Inspection of Shackles (bow & dee) as per IS 6132: 2009, Section 10.
  - e. Inspection of Swivel Hoist Ring as per IS 6132: 2009, Section 10.

**Safety:**

1. Contractor shall provide personnel protection equipment to all workmen and ensure proper usage at site work and should follow/comply BHEL safety dept. guidelines.

### Tentative Schedule of work

- 1.) Inspection of Lifting Machines from 01.06.2020 to 30.09.2020.(3 months)
- 2.) Inspection of Lifting Tackles from 01.10.2020 to 31.03.2021.(6 months)
- 3.) Inspection of Lifting Machines from 01.06.2021 to 30.09.2021.(3 months)
- 4.) Inspection of Lifting Tackles from 01.10.2021 to 31.03.2022.(6 months)

NOTE : Inspection of 5% extra lifting tackles above estimated qty. to be done at no extra cost to BHEL.

LIST OF CRANES					
SL. No.	CRANE No.	BLOCK	LOCATION	CAPACTY	MAKE
1	01 1797	01	AAO BAY	15T EOT	MUKAND
2	01 2212	01	AAO BAY	120/30T EOT	W.M.I
3	01 2275	01	AAO BAY	80/20T EOT	DEMAG
4	01 1798	01	AB BAY	5T S.GANTRY	MUKAND
5	01 2274	01	AB BAY	80/20T EOT	DEMAG
6	01 1794	01	AB BAY	50/10T EOT	W.M.I
7	01 1960	01	AB BAY	30/5T EOT	LITOSTROJ
8	01 2175	01	5 AXES M/C	5T EOT	GREAVES
9	01 1733	01	BC BAY	30/10T EOT	LITOSTROJ
10	01 1734	01	BC BAY	20/5T EOT	B.WAITE
11	01 1764	01	BC BAY	80/15T EOT	W.M.I
12	01 2229	01	BUCKETS & NOZZLES	10T EOT	SHIVPRA
13	51 6053	01	CD BAY	10T EOT	W.M.I
14	01 1752	01	COMP BAY	15T EOT	HIND
15	02 4661	01	COMP BAY	20T EOT	KHANDELWAL

16	01 1751	01	COMP BAY	20/5T EOT	B.WAITE
17	05 1908	01	COMP BAY	50/8T EOT	LITOSTROJ
18	01 1792	01	COMP BAY	30/5T EOT	MUKAND
19	01 1731	01	CROSS BAY	3T S.GANTRY	BHEL
20	01 1732	01	CROSS BAY	3T S.GANTRY	GARLICK
21	02 1966	01	CROSS BAY	5T S.GANTRY	GARLICK
22	01 2173	01	CROSS BAY	120/30T EOT	GREAVES
23	01 1783	01	CROSS BAY	30/5T EOT	LITOSTROJ
24	01 1789	01	CROSS BAY	80/15T EOT	LITOSTROJ
25	01 2228	01	CROSS BAY	80/25T EOT	W.M.I
26	01 3004	01	CROSS BAY	50/15T EOT	SHIVPRA
27	06 1629	01	CROSS BAY	5T S.GANTRY	SHIVPRA
28	01 1755	01	DE BAY	30/5T EOT	LITOSTROJ
29	01 1791	01	DE BAY	30/5T EOT	MUKAND
30	01 1773	01	EF BAY	5T EOT	B.WAITE
31	01 2765	01	EF BAY	20/5T EOT	B.WAITE
32	01 1805	01	FG BAY	5T EOT	B.WAITE
33	01 1771	01	FG BAY	15T EOT	HIND
34	01 1772	01	FG BAY	10T EOT	HIND
35	01 1757	01	GH BAY	15/5T EOT	HIND
36	01 1793	01	GH BAY	10T EOT	HOIST-O-MECH
37	04 1952	01	GH BAY	2T S.GANTRY	SHIVPRA
38	01 1790	01	GH BAY	30/5T EOT	W.M.I
39	01 1747	01	NEW BAL. TUNNEL	30/5 T EOT	LITOSTROJ
40	01 2307	01	NEW BLADE SHOP	10T EOT	SHIVPRA
41	01 2325	01	NEW BLADE SHOP	5T GANTRY	SHIVPRA
42	01 2308	01	NEW BLADE SHOP	10T EOT	SHIVPRA
43	01 1785	01	SPIN TEST PIT	10T EOT	W.M.I

44	12 1021	01	STORES	10T GANTRY	S.STRUCT
45	02 2033	02	02 SUPER BAY	50/15T EOT	GRIP
46	02 2034	02	02 SUPER BAY	250/50T EOT	MUKAND
47	02 2027	02	AA1 BAY	5T EOT	ROCKWELL
48	02 1950	02	AB BAY	5T EOT	B.WAITE
49	02 1952	02	AB BAY	5T EOT	B.WAITE
50	02 1953	02	BC BAY	5T EOT	B.WAITE
51	02 2955	02	BC BAY	30/5T EOT	LITOSTROJ
52	02 1956	02	CD BAY	15T EOT	HIND
53	02 1957	02	CD BAY	30/5T EOT	LITOSTROJ
54	02 2959	02	CD BAY	50/8T EOT	LITOSTROJ
55	02-2119	02	CD BAY(Rotor Winding)	3T EOT	CRANEX
56	02 1994	02	COIL SHOP	3T EOT	GREAVES
57	02 2087	02	COIL SHOP	1T EOT	N.R Engg
58	02 2016	02	COILSHOP STORE	5T EOT	W.M.I
59	02 1962	02	CROSS BAY	5T EOT	B.WAITE
60	01 1784	02	DE BAY	20/5T EOT	B.WAITE
61	02 1993	02	DE BAY	120/30T EOT	B.WAITE
62	02 2960	02	DE BAY	3T BRAKET	GARLICK
63	02 1990	02	DE BAY	100/20T EOT	B.WAITE
64	02 2727	02	DE BAY	50/8T EOT	LITOSTROJ
65	02 2091	02	VPI PLANT BAY	10T EOT	SHIVPRA
66	02 1608	02	15/83 BLDG	5T EOT	N.S.E
67	71 4579	02	71-new BAL TUNNEL	10T EOT	W.M.I
68	71 4552	02	71-old BAL TUNNEL	15T EOT	KHANDELWAL
69	71 4551	02	71-old BAL TUNNEL	15T EOT	KHANDELWAL
70	06 1740	02	86-BLDG (02 testing)	15T GANTRY	N.S.E
71	90 1501	02	90-BLDG	0.5T EOT	CONSOLID. ENG

72	03 1454	03	AB BAY	5T EOT	GREAVES
73	07 1808	03	AB BAY	3T EOT	N.S.E
74	03 1503	03	BC Bay	5T EOT	B.WAITE
75	03 1917	03	CD BAY	2T EOT	TEC-SERVIC
76	03 1920	03	CNC	2T EOT	BHEL
77	03 1918	03	03 CROSS Bay	2T EOT	Tech. Services
78	03 1921	03	CROSS BAY	2.5T EOT	GARLICK
79	02 1951	03	CROSS BAY	5T EOT	B.WAITE
80	03 1475	03	CROSS BAY	7.5T EOT	MUKAND
81	03 1191	03	DE BAY	2T EOT	N.S.E
82	03 1916	03	DE BAY	5T EOT	VOLTAS
83	03 1473	03	OUTSIDE	3T GANTRY	S.STRUCT
84	04 1013	04	27 BLDG (SCRAP)	15T EOT	HIND
85	04 1902	04	CD BAY	15/5T EOT	S.STRUCT
86	04 2903	04	CD BAY	10T S.GANTRY	ACCESS
87	04 1906	04	CD BAY	5T EOT	B.WAITE
88	04 1901	04	CROSS BAY	10T EOT	HIND
89	04 1916	04	CROSS BAY	10/T EOT	HIND
90	04 1019	04	CUPOLA	3.2T EOT	CZECH
91	04 1910	04	DE BAY	30/5T EOT	LITOSTROJ
92	04 2901	04	DE BAY	25/5T EOT	LITOSTROJ
93	04 1913	04	EF BAY	10/5T EOT	W.M.I
94	04 1908	04	FG BAY	5T EOT	B.WAITE
95	04 1953	04	FG BAY	5T S.GANTRY	GREAVES
96	04 1954	04	FG BAY	5T S.GANTRY	GREAVES
97	04 2904	04	FG BAY	15T EOT	SHIVPRA
98	04 1904	04	HIGH BAY	30/5T EOT	LITOSTROJ
99	04 2764	04	HIGH BAY	30/5T EOT	LITOSTROJ



100	04 1950	04	PATTERN SHOP	3T EOT	SWIFT
101	05 1616	05	AB BAY	7.5T EOT	HIND
102	05 2072	05	BC BAY	30/5T EOT	AMT INT
103	05 1900	05	CD BAY	10T EOT	HIND
104	05 1917	05	CROSS BAY	5T EOT	B.WAITE
105	05 1929	05	CROSS BAY	5T EOT	B.WAITE
106	05 2748	05	DE BAY	50/8T EOT	LITOSTROJ
107	05 2912	05	DE BAY	15T EOT	HIND
108	05 1909	05	EF BAY	5T EOT	GREAVES
109	51 6093	06	AA1 BAY	15T EOT	W.M.I
110	06 1240	06	AA1 BAY	50/10T EOT	MUKAND
111	06 1241	06	HP HEATERS AA1	20/5T EOT	W.M.I
112	06 1630	06	HP HEATERS A1A2	30/5T EOT	W.M.I
113	01 1737	06	HP HEATERS A1A2	80/15T EOT	LITOSTROJ
114	06 1248	06	HP HEATERS A1A2	60/15T EOT	B.WAITE
115	06 2624	06	AB BAY	5T EOT	B.WAITE
116	06 1612	06	AB BAY	20/5T EOT	B.WAITE
117	06 1624	06	AB BAY	50/8T EOT	LITOSTROJ
118	06 1741	06	BC BAY	2T S.GANTRY	MEE
119	06 2900	06	BC BAY	10T EOT	HIND
120	06 1623	06	BC BAY	40/10T EOT	LITOSTROJ
121	05 1901	06	BC BAY	30/5T EOT	LITOSTROJ
122	06 1619	06	CD BAY	5T EOT	B.WAITE
123	06 1617	06	CD BAY	7.5T EOT	HIND
124	06 1613	06	CD BAY	15T EOT	HIND
125	06 1620	06	DE BAY	5T EOT	B.WAITE
126	06 2625	06	DE BAY	5T EOT	B.WAITE
127	06 1615	06	DE BAY	10T EOT	HIND

128	06 1618	06	EF BAY	7.5T EOT	HIND
129	06 1750	06	PIPE YARD	1T GANTRY	INDEF
130	06 1744	06	X RAY ROOM	15T EOT	HOIST-O-MECH
131	06-2225	06	06-NEW BAY	200/60T EOT	DEMAG
132	06-2226	06	06-NEW BAY	150/40T EOT	DEMAG
133	06 2255	06	06-X-RAY ROOM(NEW)	15T EOT	SHIVPRA
134	07 1807	07	AB BAY	3T EOT	N.S.E
135	07 1819	07	AB BAY	2T EOT	CONSOLID. ENG
136	07 1806	07	BC BAY	5T EOT	B.WAITE
137	07 1803	07	CD BAY	7.5T EOT	HIND
138	08 1601	07	CD BAY	3T EOT	N.S.E
139	07 1801	07	DE BAY	15T EOT	HIND
140	07 1802	07	DE BAY	7.5T EOT	HIND
141	08 1501	08	AB BAY	3T EOT	GREAVES
142	08 1609	08	AB BAY	2T EOT	SHIVPRA
143	08 2315	08	BC BAY	5T EOT	B.WAITE
144	07 1804	08	CD BAY	5T EOT	B.WAITE
145	09 1191	09	AB BAY	2T EOT	N.S.E
146	09 1192	09	BC BAY	2T EOT	N.S.E
147	09 1193	09	CD BAY	2T EOT	N.S.E
148	09 1024	09	CDC BAY	10T GANTRY	ACCESS
149	02 1766	09	CDC(outside)	15T GANTRY	GARLICK
150	09 1207	09	CDC SHED	10T EOT	SHIVAFERROUS
151	11 1036	11 stores	AB BAY	5T EOT	B.WAITE
152	11 1038	11 stores	AB BAY	5T EOT	KHANDELWAL
153	11 1027	11 stores	BC BAY	5T EOT	SHREE ENGG
154	11 1039	11 stores	CD BAY	5T EOT	KHANDELWAL
155	11 1040	11 stores	CD BAY	5T EOT	KHANDELWAL

156	11 1022	11 stores	YARD 11- STORE	5T GANTRY	W.M.I
157	06 1905	12 stores	12STSHED(shot blasting)	10T GANTRY	MEE
158	12 1029	12 stores	New Pipe/Plate yard	30/10T GANTRY	CHITRAM
159	12 6047	12 stores	12-STORE	40/10T GANTRY	MUKAND
160	12 6049	12 stores	12-STORE	40/10T GANTRY	ANUPAM
161	11 1026	12 stores	New Pipe/Plate yard	20/5T GANTRY	SHREE ENGG
162	12 1023	12 stores	PLATE YARD	10T GANTRY	CHITRAM
163	11 1024	12 stores	PLATE YARD	10T GANTRY	GREAVES
164	17 1011	17	COMP HOUSE	5T EOT	N.S.E
165	06 1751	17 BLDG.	SRL COMP HOUSE	3T EOT	BHEL
166	02 1992	17 BLDG.	SRL COMP HOUSE	1T Single Girder EOT	BHEL
167	51 6043	51	BC BAY	40/10T EOT	W.M.I
168	51 6046	51	BC BAY	75/15T EOT	W.M.I
169	51 6103	51	BC BAY	40/10T EOT	W.M.I
170	51 6044	51	CD BAY	30/5T EOT	W.M.I
171	51 6045	51	CD BAY	20/5T EOT	W.M.I
172	51 6052	51	CD BAY	5T EOT	W.M.I
173	51 6206	51	CD BAY	5T S.GANTRY	SWIFT
174	51 6207	51	CD BAY	5T S.GANTRY	SWIFT
175	51 6208	51	CD BAY	5T S.GANTRY	SWIFT
176	51 6209	51	CD BAY	5T S.GANTRY	SWIFT
177	70 1502	51	DE BAY	10T EOT	HIND
178	51 6051	51	DE BAY	5T EOT	W.M.I
179	01 1741	51	DE BAY	15/5T EOT	HIND
180	51 6158	51	NEW BAY	40/10T EOT	SHIVPRA
181	51 6155	51	NEW BAY	80/20T EOT	ANUPAM
182	51 6157	51	NEW BAY	20/5T EOT	SHIVPRA
183	51 6184	51	NEW BAY (DE BAY)	5T S.GANTRY	PEDVAK

184	51 6185	51	NEW BAY (DE BAY)	5T S.GANTRY	PEDVAK
185	51 6199	51	DE BAY	15T EOT	ROCKWELL
186	04 1921	51	RIG UP YARD	5T GANTRY	SWIFT
187	51 0004	51	RIG UP YARD	20T GANTRY	BHEL 004
188	01 2186	51	STORES(54 CDC)	5T GANTRY	GREAVES
189	02 2024	70	AA1 BAY	5T S.GANTRY	SHIVPRA
190	70 1556	70	AA1 BAY	5T S.GANTRY	SHIVA FERROUS
191	70 1557	70	AA1 BAY	5T S.GANTRY	SHIVA FERROUS
192	70 1220	70	AA1 BAY	40/10T EOT	CRANEX
193	70 1221	70	AA1 BAY	40/10T EOT	CRANEX
194	70 1542	70	AB BAY	15T EOT	SHIVPRA
195	70 1513	70	BC BAY	5T EOT	W.M.I
196	70 1514	70	BC BAY	15/5T EOT	W.M.I
197	70 1515	70	BC BAY	5T EOT	W.M.I
198	70 1510	70	CD BAY	15/5T EOT	FAFACO
199	70 1501	70	CD BAY	15T EOT	HIND
200	70 1516	70	CD BAY	2T S.GANTRY	GREAVES
201	70 1517	70	CD BAY	30/10T EOT	GREAVES
202	01 3048	9A	G.T M/C SHOP	80/20T EOT	DEMAG
203	01 3049	9A	G.T M/C SHOP	80/20T EOT	DEMAG
204	01 3058	9A	G.T M/C SHOP	30/10T EOT	CRANEX
205	01 3059	9A	GT OPEN YARD	30/5T GANTRY	SHREE ENGG
206	01 3057	9FE	GT Rotor Assly. AB bay	30/10T EOT	CRANEX
207	01 3052	9FE	GT Rotor Assly. AB bay	120/30T EOT	UNIQUE
208	01 3051	9FE Fr5	GT Assly. EF bay	120/30T EOT	UNIQUE
209	06 1625	9FE Fr5	GT Assly. EF bay	120/30T EOT	B.WAITE
210	013061	9FE Fr5	GT Assly. EF bay	10T S.GANTRY	SHREE ENGG
211	01 3001	9FA	GT Assly. Fr9F GH bay	175/75T EOT	W.M.I

212	01 3002	9FA	GT Assly. Fr9F GH bay	175/75T EOT	W.M.I
213	01 3003	9FA	GT Assly. Fr9F GH bay	20/5T EOT	SHIVPRA
214	01 3050	9E	GT Testing Fr6 & 9E	80/20 EOT	DEMAG
215	04 1951	DPH	NEW DPH	5T EOT	BHEL
216	04 1915	DPH	Old DPH	5T EOT	SHIVPRA
217	-----	04	Sand Bay	Sand Grab Unit	-----
218	-----	04	Sand Bay	Sand Grab Unit	-----
219	01 1796	01	01 NEW BALANCING TUNNEL	3T	
220	01 1730	01	01 COMP. BAY(OFF BAY)	0.5T	
221	01 1745	01	01 FG BAY	0.5T	
222	01 1762	02	02 BC BAY	0.5T	CISCO
223	02 1964	02	71 BLDG NBT	1T	
224	71 4902	02	71 BALANCING TUNNEL (02)	2T	CISCO
225	01 1795	02	WORKS CANTEEN	0.5T	CISCO
226	03 0235	03	03 AB BAY	2T	
227	03 0234	03	03 AB BAY	2T	
228	03 1915	03	03 AB BAY	0.5T	
229	03 1914	03	03 AB BAY	0.5T	
230	03 1911	03	03 BC BAY	0.5T	
231	03 1912	03	03 BC BAY	0.5T	
232	03 1913	03	03 BC BAY	0.5T	SHARPS
233	03 1763	03	03 DE BAY	0.5T	CISCO
234	03 0399	03	03 CROSS BAY TESTING	0.5T	POWER LIFE
235	04 1914	04	04 FG BAY	1T	INDEF
236	04 1030	04	04 FG BAY	0.5T	INDEF
237	04 1917	04	04 FG BAY	1T	INDEF

238	04 1941	04	04 HIGH BAY	5T	
239	04 1942	05	05 CROSS BAY	2T	
240	05 2000	05	05 MOULDING	0.5T	
241	05 2001	05	05 MOULDING	0.5T	
242	05 0197	05	DE Bay (Column11)	2T	
243	05 1919	05	Cross bay(F12-F13)	0.5T	
244	05 1961	05	E11-F11	0.5T	
245	02 1999	06	Works canteen	0.5T	
246	07 1812	7	07 DE BAY	0.5T	CISCO
247	07 1813	7	07 DE BAY	0.5T	
248	11 0196	11 ST	11 ST LOGISTICS	1T	GREAVES
249	51 6101	51	51 AB BAY	3T	HOIST-O-MECH
250	51 6102	51	51 BC BAY	2T	HOIST-O-MECH
251	51 6100	51	51 BC BAY	2T	HOIST-O-MECH
252	51 1789	51	51 AB BAY	2T	
253	01 1962	51	54 LOGISTICS BOWL MILL	2T	
254	51 1985	70	70 BLK BAY 4	2T	INDEF
255	04 0038	DPH	NEW DPH	0.5T	
256	04 0039	DPH	NEW DPH	5T	