

Productivity Practices



Mitsui Success Story

(Rev1)

Prepared By: Chen

Date: 13-Jun-2018

Recommendation from Productivity Practices WG

Permitting

Opportunity

- Significant waiting time for Work Permits issuance (0800-0900)

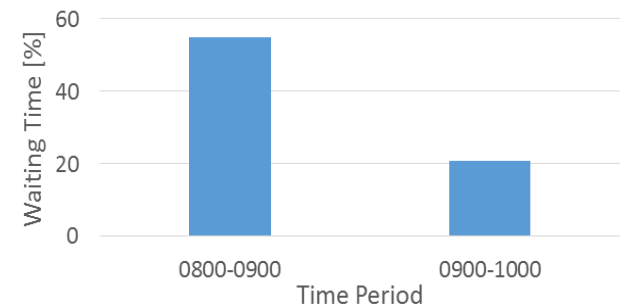
Permit Survey

- Most plant owners with only one designated permit issuer per shift
- Hot Work/Cold Work permits on the same queue, long waiting time.
- Some plant owners with following good practices:
 - Structure in place to prioritize approving of non-critical cold work permit
 - Senior process technicians trained and qualified to approve permits

Recommended Practices

- Issuance of Cold Work Permit first before Hot Work Permits.
 - Cold work permits comprise bulk of permits, majority of workforce
- Qualify Senior Technicians to issue Non-Critical Cold Work Permits.
 - More than one permit issuer will shorten waiting time

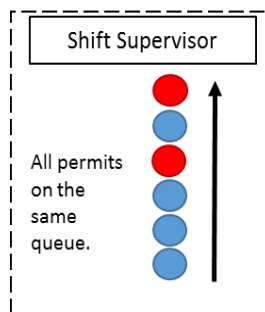
Activity Analysis Data



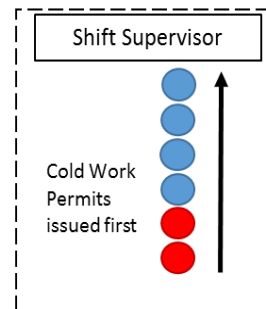
LEGEND

- Cold Work Permits
- Hot Work Permits

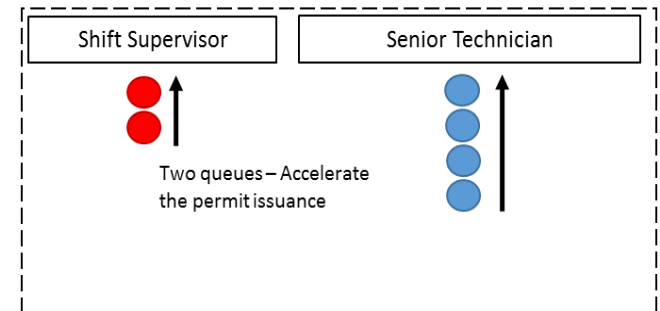
Typical Practice



Recommended Practices



OR



Proposal

- ❖ **Apply permits one day before start of work. Working activities should be pre-agreed in daily progress meeting.**
- ❖ **Increase number of permit issuers. Allow Senior technicians to issue permit. Training shall be provided for them.**

Actions

- ❖ **Conduct Work Permit issuer training 3 times (27-Nov-17; 13-Dec-17 & 18-Mar-18) for Senior Technicians by HSE before SDM.**
- ❖ **Establish the SDM KPI**

Cold Work Permit Approved Ratio

Formula= $\text{Nos. Approved CW Permit} / \text{Nos. of Planned CW Permit (Daily)} * 100\%$

(Note: Before 8:30am during Hot work period)

Target: $\geq 92\%$ (PH) & $\geq 90\%$ (BPA)

- ❖ **Communicate with Operation and Contractor**

Action Plan

- * **SPTs** (Senior Process Technicians) selected for this role will claim acting allowance during the **SDM** (Shutdown Maintenance).
- * This practise will be carried out in **SDM** Hot Work period only.
- * **SPTs** will only issue Cold Work and Vehicle entry
- * The check list on the **PTW** (Permit To Work) will be done by another technician different from the permit issuer **SPTs**.
- * The **SPTs** will be rotated for this **PTW** approval role on a per day basis, the number of **SPTs** helping out will be capped at equivalent to the number of **SSVs** (Shift Supervisors) on site. Hence, we can only double the number of permit issuers on a per day basis.
- * Each **PTW** issuing **SPT** will be attached to a **SSV** to manage the same area.
- * List of **SPT** permit issuer to be planned into the **SDM** shift schedule and declared as early as practical to the teams.
- * All **SPTs** to be given **PTW** training by **HSE** before **SDM**.

Result

- ❖ **Total Man-hours Saving is 3967.5 hours**
- ❖ **5% Productivity Gain**
- ❖ **BPA2 Plant SDM: Ahead schedule
4 days**
- ❖ **PH Plant SDM: Ahead schedule
2 days**

FY18 SDM Cold Work Permit ON Time Approval

Date	Applied Cold Work Permit						On Time Approved Permit						% Cold work Permit approved Ratio						Total Permit Nos	Total Approved Permit Nos	Manhour Saving	Productivity Gain (%)
	PH		BPA-1		BPA-2		PH		BPA-1		BPA-2		PH		BPA-1		BPA-2					
	Mech.	E&I	Mech.	E&I	Mech.	E&I	Mech.	E&I	Mech.	E&I	Mech.	E&I	Mech.	E&I	Mech.	E&I	Mech.	E&I				
4-Apr-18					63	11					63	11					100.00%	100.00%	74	74	111	5.00%
5-Apr-18					50	13					50	13					100.00%	100.00%	63	63	94.5	5.00%
6-Apr-18					52	8					50	8					96.15%	100.00%	60	58	87	5.00%
7-Apr-18					63	8					61	8					96.83%	100.00%	71	69	103.5	5.00%
8-Apr-18					65	9					65	9					100.00%	100.00%	74	74	111	5.00%
9-Apr-18					59	8					59	8					100.00%	100.00%	67	67	100.5	5.00%
10-Apr-18					42	10					42	10					100.00%	100.00%	52	52	78	5.00%
11-Apr-18					40	13					40	13					100.00%	100.00%	53	53	79.5	5.00%
12-Apr-18					30	16					30	16					100.00%	100.00%	46	46	69	5.00%
13-Apr-18	82	16			21	12	79	16			21	12	96.34%	100.00%			100.00%	100.00%	131	128	192	5.00%
14-Apr-18	87	7	46	10	14	18	85	7	46	10	14	18	97.70%	100.00%	100.00%	100.00%	100.00%	100.00%	182	180	270	5.00%
15-Apr-18	79	4	49	17	7	9	79	4	49	17	7	9	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	165	165	247.5	5.00%
16-Apr-18	81	14	40	11	6	6	81	14	40	11	6	6	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	158	158	237	5.00%
17-Apr-18	76	13	30	7	6	5	76	13	30	7	6	5	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	137	137	205.5	5.00%
18-Apr-18	65	13	44	10	2	2	65	13	44	10	2	2	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	136	136	204	5.00%
19-Apr-18	57	19	41	10	2	1	57	19	41	10	2	1	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	130	130	195	5.00%
20-Apr-18	62	10	28	13			62	10	28	13			100.00%	100.00%	100.00%	100.00%			113	113	169.5	5.00%
21-Apr-18	74	14	26	9			74	14	26	9			100.00%	100.00%	100.00%	100.00%			123	123	184.5	5.00%
22-Apr-18	78	16	24	10			78	16	24	10			100.00%	100.00%	100.00%	100.00%			128	128	192	5.00%
23-Apr-18	84	17	25	17			84	17	24	17			100.00%	100.00%	96.00%	100.00%			143	142	213	5.00%
24-Apr-18	61	12	20	1			61	12	19	1			100.00%	100.00%	95.00%	100.00%			94	93	139.5	5.00%
25-Apr-18	42	16	15	15			42	16	14	15			100.00%	100.00%	93.33%	100.00%			88	87	130.5	5.00%
26-Apr-18	59	14	9	8			59	14	8	8			100.00%	100.00%	88.89%	100.00%			90	89	133.5	5.00%
27-Apr-18	60	15	4	0			60	15	4	0			100.00%	100.00%	100.00%	NA			79	79	118.5	5.00%
28-Apr-18	60	16					60	16					100.00%	100.00%					76	76	114	5.00%
29-Apr-18	32	14					32	14					100.00%	100.00%					46	46	69	5.00%
30-Apr-18	18	11					18	11					100.00%	100.00%					29	29	43.5	5.00%
1-May-18	10	8					10	8					100.00%	100.00%					18	18	27	5.00%
2-May-18	8	17					8	17					100.00%	100.00%					25	25	37.5	5.00%
3-May-18	4	3					4	3					100.00%	100.00%					7	7	10.5	5.00%

Total 3967.5

Manhour Saving= Nos Approved PermitX Work Crews (3)X Average Time Saving (1/2 hour)

Productivity Gain%=Manhour Saving/[Nos Approved PermitX Work Crews (3)X Average Normal Working Time(10 hours)]