

# “EXPANSION” DURING SHUTDOWN

Shutdown is a highly expensive planned period for refinery. During this time, an entire part of the operation is offline

Shutdown taken by refinery once in 4 to 5 years, for 30 to maximum 90 days.

Refinery runs 24 hrs, for 365 days, while continuity of operation there is need to do maintenance and expansion for better productivity. Almost 90 percent of maintenance is done while running condition.

But some refinery maintenance and expansion could not do while running condition due to safety concern.

Shutdown Maintenance and Expansion that can only be performed while equipment is not in use. Shutting down machinery can be costly, but sometimes due to the nature of the defective part/machine, shutdown is the only procedure for Maintenance and Expansion.

Due to continuously increasing demand of product refinery also wanted to increase production therefore increasing capacity of plant is the only way for full fulfilling demands.

For increasing capacity Expansion is the only way, in this process all the equipment, machineries, pipelines get upgraded.

New equipment's are installed for improving capacity of plant.

Expansion during shutdown is the critical procedure, also time is very important aspect, so before shutdown period all the aspects get decided and planned accordingly.

## STRUCTURE OF TABLES

### EMPLOYEE :-

This table describes all the details of Sr. No., Employee ID, Name, Designation, E-mail, Contact.

```
MariaDB [expansion]> desc employee;
```

Field	Type	Null	Key	Default	Extra
sr_no	int(11)	YES		NULL	
employee_id	int(11)	NO	PRI	NULL	
name	varchar(20)	YES		NULL	
Designation	varchar(50)	YES		NULL	
email	varchar(50)	YES		NULL	
contact	varchar(20)	YES		NULL	

6 rows in set (0.118 sec)

### ACCOUNT :-

This table describes the details of Sr. No., Account ID, Salary, Month, Year, Date of joining, Employee ID.

```
MariaDB [expansion]> desc account;
```

Field	Type	Null	Key	Default	Extra
Sr_no	int(11)	YES		NULL	
Account_id	int(11)	NO	PRI	NULL	
Salary	int(11)	YES		NULL	
Month	varchar(20)	YES		NULL	
Year	int(11)	YES		NULL	
Date_of_joining	varchar(50)	YES		NULL	
Employee_id	int(11)	YES	MUL	NULL	

7 rows in set (0.010 sec)

## PROJECT :-

This table describes all the details of Sr. No., Project ID, Name, Estimate Duration, Description, Client ID.

```
MariaDB [expansion]> desc project;
```

Field	Type	Null	Key	Default	Extra
Sr_no	int(11)	YES		NULL	
Project_id	int(11)	NO	PRI	NULL	
Name	varchar(100)	YES		NULL	
Estimate_duration	varchar(50)	YES		NULL	
Discription	varchar(500)	YES		NULL	
Client_id	int(11)	YES	MUL	NULL	

6 rows in set (0.011 sec)

## CLIENT :-

This table describes the details of Sr. No., Client ID, Name, E-mail, Contact, GSTN.

```
MariaDB [expansion]> desc client;
```

Field	Type	Null	Key	Default	Extra
Sr_no	int(11)	YES		NULL	
Client_id	int(11)	NO	PRI	NULL	
Name	varchar(100)	YES		NULL	
Email	varchar(50)	YES		NULL	
Contact	varchar(50)	YES		NULL	
GSTN	varchar(50)	YES		NULL	

6 rows in set (0.012 sec)

## PROJECT EMPLOYEE ID :-

This table describes the detail of Sr. No., Project Employee ID, Project ID, Employee ID.

```
MariaDB [expansion]> desc pro_emp_id;
```

Field	Type	Null	Key	Default	Extra
Sr_no	int(11)	YES		NULL	
Pro_emp_id	int(11)	NO	PRI	NULL	
Project_id	int(11)	YES	MUL	NULL	
Employee_id	int(11)	YES	MUL	NULL	

4 rows in set (0.012 sec)

## CONTENTS OF TABLES

EMPLOYEE :-

```
MariaDB [expansion]> select * from employee;
```

sr_no	employee_id	name	Designation	email	contact
1	101	kiran karande	Chif Manager	kirankarande@gmail.com	99856327
2	102	akash pendse	Manager	akashpendse@gmail.com	99881127
3	103	nanda shinde	HR	nandashinde@gmail.com	97445827
4	104	ashok karande	Manager	ashokkarande@gmail.com	97723657
5	105	prabhakar more	Operator	prabhakarmore@gmail.com	97987327
6	106	vasanti yadav	House keeping staff	vasantiyadav@gmail.com	97444327
7	107	prajkta ramugade	HR	prajktaramugade@gmail.com	99981127
8	108	soham desai	Field Engineer	sohamdesai@gmail.com	97448887
9	109	ulhas kamble	Operator	ulhaskamble@gmail.com	99723657
10	110	nakushi ranade	House keeping staff	nakushiranade@gmail.com	97933397
11	111	priyanka mitke	House keeping staff	priyankamitke@gmail.com	97444322
12	112	pratiksha kamat	House keeping staff	pratikshakamat@gmail.com	77781127
13	113	nilu ghoshali	Driver	nilughoshali@gmail.com	97472187
14	114	ajay shahane	Field Engineer	ajayshahane@gmail.com	99723000
15	115	vijay kanade	Field Engineer	vijaykanade@gmail.com	97931117
16	116	manoj mane	Field Engineer	manojmane@gmail.com	97487872
17	117	sanjay apte	Operator	sanjayapte@gmail.com	701281127
18	118	bhau marne	Operator	bhaumarne@gmail.com	97470087
19	119	pravin vichare	Driver	pravinvichare@gmail.com	99803000
20	120	sonali lomte	Gardner	sonalilomte@gmail.com	97930897
21	121	sanjivni pawar	Gardner	sanjivnipawar@gmail.com	97011872

```
21 rows in set (0.001 sec)
```

## ACCOUNT :-

```
MariaDB [expansion]> select * from account;
```

Sr_no	Account_id	Salary	Month	Year	Date_of_joining	Employee_id
1	201	300000	December	1994	09/12/2002	101
2	202	220000	March	1990	07/07/2012	102
3	203	98000	January	1965	28/11/2007	103
4	204	220000	May	1999	17/2/2018	104
5	205	42000	April	1960	23/10/2015	105
6	206	30000	August	1975	19/08/2016	106
7	207	98000	November	1998	12/01/2003	107
8	208	130000	December	1988	22/03/2008	108
9	209	42000	March	1970	25/06/2010	109
10	210	30000	July	1998	11/12/2013	110
11	211	30000	June	1966	09/04/2017	111
12	212	30000	August	1989	14/05/2003	112
13	213	32000	May	1983	05/2/2018	113
14	214	130000	May	1997	23/0/2013	114
15	215	130000	August	1970	16/08/2020	115
16	216	130000	January	1998	03/11/2003	116
17	217	42000	December	1981	28/08/2017	117
18	218	42000	March	1979	19/06/2005	118
19	219	32000	July	1959	14/04/2014	119
20	220	25000	June	1999	17/01/2017	120
21	221	25000	August	1991	19/09/2011	121

```
21 rows in set (0.001 sec)
```

## CLIENT :-

```
MariaDB [expansion]> select * from client;
```

Sr_no	Client_id	Name	Email	Contact	GSTN
1	301	Hindustan Petroleum Corporation ltd	hindustanpetroleum.in	98925699	HPCL32984370
2	302	Bharat Petroleum Corporation ltd	bharatpetroleum.in	98552189	BPCL36666370
3	303	Indian Oil Corporation ltd	indianoil.in	98090089	IOCL00466380
4	304	GAIL India Corporation ltd	gailindia.in	98091127	GAIL00467730
5	305	BHEL India Corporation ltd	bhailindia.in	98882827	BHEL00467730
6	306	Oil and Natural Gas ltd	ONGCindia.in	77782827	ONGC0086730
7	307	Mahanagar Gas ltd	mahanagargas.in	99982427	MGL00866660
8	308	reliance Petroleum ltd	reliancepetroleum.in	77982427	RLCL00866660

```
8 rows in set (0.001 sec)
```

## PROJECT :-

```
MariaDB [expansion]> select * from project;
```

Sr_no	Project_id	Name	Estimate_duration	Discription	Client_id
1	401	erection of Heat Exchanger	20 days	for improving heat diciplating	301
2	402	erection of chiller	16 days	for maintaning product tempreture	301
3	403	erection of boiler	25 days	for increasing product tempreture	301
4	404	erection of Air Dryer	35 days	for removing moisture from product	301
5	405	erection of Spools	45 days	for improving heat diciplating	301
6	406	erection of Heat Exchanger	20 days	for improving heat diciplating	302
7	407	erection of chiller	16 days	for maintaning product tempreture	302
8	408	erection of boiler	25 days	for increasing product tempreture	302
9	409	erection of Air Dryer	35 days	for removing moisture from product	302
10	410	erection of Spools	45 days	for increasing efficiency of plant	302
11	411	Installation of pupms	10 days	for high capacity head	303
12	412	Installation of valves	28 days	for improving fast movment	303
13	413	Installation of electic compressor	50 days	for better high air discharge	303
14	414	Installation of Expansion joint	60 days	for improving seal quality	304
15	415	Installation of cooler tower	54 days	for improving cooling capacity	304
16	416	cleaning of sump tank	7 days	for removing sludge from tank	304
17	417	erection of spools	48 days	for improving capacity of plant	305
18	418	erection of chiller	18 days	for maintaining product tempreture	305
19	419	Installation of valves	30 days	for improving fast movment	305
20	420	Installation of Heat exchanger	30 days	for improving Heat disipliting	305
21	421	Installation of electic compressor	50 days	for better high air discharge	306
22	422	Installation of Expansion joint	43 days	for improving seal quality	306
23	423	cleaning of sump tank	10 days	for removing sludge from tank	306
24	424	Installation of pupms	15 days	for high capacity head	306
25	425	Installation of cooler tower	52 days	for improving cooling capacity	307
26	426	Installation of Expansion joint	40 days	for improving seal quality	307
27	427	erection of spools	55 days	for improving capacity of plant	307
28	428	Cleaning of stainer	4 days	for removing impurities	307
29	429	Installation of electic compressor	35 days	for better high air discharge	308
30	430	Installation of Heat exchanger	34 days	for improving Heat disipliting	308
31	431	cleaning of sump tank	10 days	for removing sludge from tank	308
32	432	erection of chiller	34 days	for maintaining product tempreture	308
33	433	Installation of pupms	15 days	for high capacity head	308

```
33 rows in set (0.001 sec)
```

# PROJECT EMPLOYEE CO-RELATION (Pro\_emp\_id) :-

```
MariaDB [expansion]> select * from pro_emp_id;
```

Sr_no	live_project_id	Project_id	Employee_id
1	501	401	101
2	502	401	102
3	503	401	103
4	504	401	108
5	505	401	109
6	506	401	117
7	507	401	113
8	508	401	120
9	509	402	101
10	510	402	102
11	511	402	103
12	512	402	108
13	513	402	109
14	514	402	111
15	515	402	119
16	516	402	120
17	517	403	101
18	518	403	104
19	519	403	107
20	520	403	114
21	521	403	105
22	522	403	112
23	523	403	113
24	524	403	121
25	525	404	101
26	526	404	102
27	527	404	103
28	528	404	108
29	529	404	109
30	530	404	110
31	531	404	113
32	532	404	120
33	533	405	101
34	534	405	102
35	535	405	103
36	536	405	108
37	537	405	109
38	538	405	110
39	539	405	113
40	540	405	120
41	541	406	101



234	734	429	104
235	735	429	107
236	736	429	112
237	737	429	113
238	738	429	116
239	739	429	118
240	740	429	121
241	741	430	101
242	742	430	104
243	743	430	107
244	744	430	112
245	745	430	113
246	746	430	116
247	747	430	118
248	748	430	121
249	749	431	101
250	750	431	104
251	751	431	107
252	752	431	112
253	753	431	113
254	754	431	116
255	755	431	118
256	756	431	121
257	757	432	101
258	758	432	104
259	759	432	107
260	760	432	112
261	761	432	113
262	762	432	116
263	763	432	118
264	764	432	121
265	765	433	101
266	766	433	104
267	767	433	107
268	768	433	112
269	769	433	113
270	770	433	116
271	771	433	118
272	772	433	121

+-----+  
272 rows in set (0.001 sec)

## SUB-QUERIES :-

1. The following query provides all the details such as Employee ID, Name, Designation, E-mail, contact who's working under project whom's client is Hindustan petroleum corporation ltd.

MariaDB [expansion]> select \* from employee where employee\_id in (select employee\_id from pro\_emp\_id where project\_id in (select project\_id from project where client\_id in (select client\_id from client where name= "hindustan petroleum corporation ltd"))));

sr_no	employee_id	name	Designation	email	contact
1	101	kiran karande	Chif Manager	kirankarande@gmail.com	99856327
2	102	akash pendse	Manager	akashpendse@gmail.com	99881127
3	103	nanda shinde	HR	nandashinde@gmail.com	97445827
4	104	ashok karande	Manager	ashokkarande@gmail.com	97723657
5	105	prabhakar more	Operator	prabhakarmore@gmail.com	97987327
7	107	prajkta ramugade	HR	prajktaramugade@gmail.com	99981127
8	108	soham desai	Field Engineer	sohamdesai@gmail.com	97448887
9	109	ulhas kamble	Operator	ulhaskamble@gmail.com	99723657
10	110	nakushi ranade	House keeping staff	nakushiranade@gmail.com	97933397
11	111	priyanka mitke	House keeping staff	priyankamitke@gmail.com	97444322
12	112	pratiksha kamat	House keeping staff	pratikshakamat@gmail.com	77781127
13	113	nilu ghoshali	Driver	nilughoshali@gmail.com	97472187
14	114	ajay shahane	Field Engineer	ajayshahane@gmail.com	99723000
17	117	sanjay apte	Operator	sanjayapte@gmail.com	701281127
19	119	pravin vichare	Driver	pravinvichare@gmail.com	99803000
20	120	sonali lomte	Gardner	sonalilomte@gmail.com	97930897
21	121	sanjivni pawar	Gardner	sanjivnipawar@gmail.com	97011872

17 rows in set (0.059 sec)

2. The following query provides all the details such as Employee ID, Name, Designation, E-mail, Contact who's working under project whom's client is mahanagar gas ltd.

MariaDB [expansion]> Select \* from employee where employee\_id in (select employee\_id from pro\_emp\_id where project\_id in (select project\_id from project where client\_id in (select client\_id from client where name = "mahanagar gas ltd"))));

sr_no	employee_id	name	Designation	email	contact
1	101	kiran karande	Chif Manager	kirankarande@gmail.com	99856327
2	102	akash pendse	Manager	akashpendse@gmail.com	99881127
3	103	nanda shinde	HR	nandashinde@gmail.com	97445827
5	105	prabhakar more	Operator	prabhakarmore@gmail.com	97987327
6	106	vasanti yadav	House keeping staff	vasantiyadav@gmail.com	97444327
15	115	vijay kanade	Field Engineer	vijaykanade@gmail.com	97931117
19	119	pravin vichare	Driver	pravinvichare@gmail.com	99803000
20	120	sonali lomte	Gardner	sonalilomte@gmail.com	97930897

8 rows in set (0.001 sec)

3.The following query mentions all the client's name where Ashok Karande is working with.

MariaDB [expansion]> select name from client where client\_id in (select client\_id from project where project\_id in (select project\_id from pro\_emp\_id where employee\_id in (select employee\_id from employee where name = "ashok karande"))));

```
+-----+
| name                                     |
+-----+
| Hindustan Petroleum Corporation ltd     |
| Bharat Petroleum Corporation ltd       |
| GAIL India Corporation ltd             |
| Oil and Natural Gas ltd                |
| reliance Petroleum ltd                  |
+-----+
5 rows in set (0.002 sec)
```

## JOINS :-

### FULL JOIN (UNION) :-

1. This query shows us union join between table employee and table account where it contains name, designation, salary, id, date of joining.

```
MariaDB[expansion]>select  
employee.name,employee.designation,account.salary,account.account_id,account.da  
te_of_joining from employee left join account on  
employee.employee_id=account.employee_id union select  
employee.name,employee.designation,account.salary,account.account_id,account.da  
te_of_joining from employee right join account on  
employee.employee_id=account.employee_id;
```

name	designation	salary	account_id	date_of_joining
kiran karande	Chif Manager	300000	201	09/12/2002
akash pendse	Manager	220000	202	07/07/2012
nanda shinde	HR	98000	203	28/11/2007
ashok karande	Manager	220000	204	17/2/2018
prabhakar more	Operator	42000	205	23/10/2015
vasanti yadav	House keeping staff	30000	206	19/08/2016
prajkta ramugade	HR	98000	207	12/01/2003
soham desai	Field Engineer	130000	208	22/03/2008
ulhas kamble	Operator	42000	209	25/06/2010
nakushi ranade	House keeping staff	30000	210	11/12/2013
priyanka mitke	House keeping staff	30000	211	09/04/2017
pratiksha kamat	House keeping staff	30000	212	14/05/2003
nilu ghoshali	Driver	32000	213	05/2/2018
ajay shahane	Field Engineer	130000	214	23/0/2013
vijay kanade	Field Engineer	130000	215	16/08/2020
manoj mane	Field Engineer	130000	216	03/11/2003
sanjay apte	Operator	42000	217	28/08/2017
bhau marne	Operator	42000	218	19/06/2005
pravin vichare	Driver	32000	219	14/04/2014
sonali lomte	Gardner	25000	220	17/01/2017
sanjivni pawar	Gardner	25000	221	19/09/2011

21 rows in set (0.001 sec)

## INNER JOIN :-

2. This query shows us inner join between table client and table project where it contains client name, e-mail, project name and estimate duration.

MariaDB[expansion]>select

client.name,client.email,project.name,project.estimate\_duration from client inner join project on client.client\_id=project.client\_id;

name	email	name	estimate_duration
Hindustan Petroleum Corporation ltd	hindustanpetroleum.in	erection of Heat Exchanger	20 days
Hindustan Petroleum Corporation ltd	hindustanpetroleum.in	erection of chiller	16 days
Hindustan Petroleum Corporation ltd	hindustanpetroleum.in	erection of boiler	25 days
Hindustan Petroleum Corporation ltd	hindustanpetroleum.in	erection of Air Dryer	35 days
Hindustan Petroleum Corporation ltd	hindustanpetroleum.in	erection of Spools	45 days
Bharat Petroleum Corporation ltd	bharatpetroleum.in	erection of Heat Exchanger	20 days
Bharat Petroleum Corporation ltd	bharatpetroleum.in	erection of chiller	16 days
Bharat Petroleum Corporation ltd	bharatpetroleum.in	erection of boiler	25 days
Bharat Petroleum Corporation ltd	bharatpetroleum.in	erection of Air Dryer	35 days
Bharat Petroleum Corporation ltd	bharatpetroleum.in	erection of Spools	45 days
Indian Oil Corporation ltd	indianoil.in	Installation of pupms	10 days
Indian Oil Corporation ltd	indianoil.in	Installation of valves	28 days
Indian Oil Corporation ltd	indianoil.in	Installation of electric compressor	50 days
GAIL India Corporation ltd	gailindia.in	Installation of Expansion joint	60 days
GAIL India Corporation ltd	gailindia.in	Installation of cooler tower	54 days
GAIL India Corporation ltd	gailindia.in	cleaning of sump tank	7 days
BHEL India Corporation ltd	bhailindia.in	erection of spools	48 days
BHEL India Corporation ltd	bhailindia.in	erection of chiller	18 days
BHEL India Corporation ltd	bhailindia.in	Installation of valves	30 days
BHEL India Corporation ltd	bhailindia.in	Installation of Heat exchanger	30 days
Oil and Natural Gas ltd	ONGCindia.in	Installation of electric compressor	50 days
Oil and Natural Gas ltd	ONGCindia.in	Installation of Expansion joint	43 days
Oil and Natural Gas ltd	ONGCindia.in	cleaning of sump tank	10 days
Oil and Natural Gas ltd	ONGCindia.in	Installation of pupms	15 days
Mahanagar Gas ltd	mahanagargas.in	Installation of cooler tower	52 days
Mahanagar Gas ltd	mahanagargas.in	Installation of Expansion joint	40 days
Mahanagar Gas ltd	mahanagargas.in	erection of spools	55 days
Mahanagar Gas ltd	mahanagargas.in	Cleaning of stainer	4 days
reliance Petroleum ltd	reliancepetroleum.in	Installation of electric compressor	35 days
reliance Petroleum ltd	reliancepetroleum.in	Installation of Heat exchanger	34 days
reliance Petroleum ltd	reliancepetroleum.in	cleaning of sump tank	10 days
reliance Petroleum ltd	reliancepetroleum.in	erection of chiller	34 days
reliance Petroleum ltd	reliancepetroleum.in	Installation of pupms	15 days

33 rows in set (0.001 sec)

## View :-

1. Following query of view shows designation and total salary cost to the company.

MariaDB [expansion]> create view designation\_total\_salary as select designation,sum (salary) "Total salary" from employee\_account\_union group by designation;

```
MariaDB [expansion]> show tables;
```

Tables_in_expansion
account
client
client_project_inner
designation_total_salary
employee
employee_account_union
live_project
project

```
8 rows in set (0.001 sec)
```

```
MariaDB [expansion]> select * from designation_total_salary;
```

Designation	Total salary
Chif Manager	300000
Driver	64000
Field Engineer	520000
Gardner	50000
House keeping staff	120000
HR	196000
Manager	440000
Operator	168000

```
8 rows in set (0.002 sec)
```



2. Following query of view shows employee account union join which name by employee\_account\_union.

```
MariaDB[expansion]> create view employee_account_union as select  
employee.name,employee.designation,account.salary,account.account_id,account.da  
te_of_joining from employee left join account on  
employee.employee_id=account.employee_id union select  
employee.name,employee.designation,account.salary,account.account_id,account.da  
te_of_joining from employee right join account on  
employee.employee_id=account.employee_id;
```

```
MariaDB [expansion]> select * from employee_account_union;
```

name	designation	salary	account_id	date_of_joining
kiran karande	Chif Manager	300000	201	09/12/2002
akash pendse	Manager	220000	202	07/07/2012
nanda shinde	HR	98000	203	28/11/2007
ashok karande	Manager	220000	204	17/2/2018
prabhakar more	Operator	42000	205	23/10/2015
vasanti yadav	House keeping staff	30000	206	19/08/2016
prajkta ramugade	HR	98000	207	12/01/2003
soham desai	Field Engineer	130000	208	22/03/2008
ulhas kamble	Operator	42000	209	25/06/2010
nakushi ranade	House keeping staff	30000	210	11/12/2013
priyanka mitke	House keeping staff	30000	211	09/04/2017
pratiksha kamat	House keeping staff	30000	212	14/05/2003
nilu ghoshali	Driver	32000	213	05/2/2018
ajay shahane	Field Engineer	130000	214	23/0/2013
vijay kanade	Field Engineer	130000	215	16/08/2020
manoj mane	Field Engineer	130000	216	03/11/2003
sanjay apte	Operator	42000	217	28/08/2017
bhau marne	Operator	42000	218	19/06/2005
pravin vichare	Driver	32000	219	14/04/2014
sonali lomte	Gardner	25000	220	17/01/2017
sanjivni pawar	Gardner	25000	221	19/09/2011

21 rows in set (0.002 sec)



3. Following query of view shows client project inner join which name by client\_project\_inner.

MariaDB[expansion]> create view client\_project\_inner as select client.client name,client.email,project.name,project.estimate\_duration from client inner join project on client.client\_id=project.client\_id;

```
MariaDB [expansion]> select * from client_project_inner;
```

client name	email	name	estimate_duration
Hindustan Petroleum Corporation ltd	hindustanpetroleum.in	erection of Heat Exchanger	20 days
Hindustan Petroleum Corporation ltd	hindustanpetroleum.in	erection of chiller	16 days
Hindustan Petroleum Corporation ltd	hindustanpetroleum.in	erection of boiler	25 days
Hindustan Petroleum Corporation ltd	hindustanpetroleum.in	erection of Air Dryer	35 days
Hindustan Petroleum Corporation ltd	hindustanpetroleum.in	erection of Spools	45 days
Bharat Petroleum Corporation ltd	bharatpetroleum.in	erection of Heat Exchanger	20 days
Bharat Petroleum Corporation ltd	bharatpetroleum.in	erection of chiller	16 days
Bharat Petroleum Corporation ltd	bharatpetroleum.in	erection of boiler	25 days
Bharat Petroleum Corporation ltd	bharatpetroleum.in	erection of Air Dryer	35 days
Bharat Petroleum Corporation ltd	bharatpetroleum.in	erection of Spools	45 days
Indian Oil Corporation ltd	indianoil.in	Installation of pupms	10 days
Indian Oil Corporation ltd	indianoil.in	Installation of valves	28 days
Indian Oil Corporation ltd	indianoil.in	Installation of electic compressor	50 days
GAIL India Corporation ltd	gailindia.in	Installation of Expansion joint	60 days
GAIL India Corporation ltd	gailindia.in	Installation of cooler tower	54 days
GAIL India Corporation ltd	gailindia.in	cleaning of sump tank	7 days
BHEL India Corporation ltd	bhailindia.in	erection of spools	48 days
BHEL India Corporation ltd	bhailindia.in	erection of chiller	18 days
BHEL India Corporation ltd	bhailindia.in	Installation of valves	30 days
BHEL India Corporation ltd	bhailindia.in	Installation of Heat exchanger	30 days
Oil and Natural Gas ltd	ONGCindia.in	Installation of electic compressor	50 days
Oil and Natural Gas ltd	ONGCindia.in	Installation of Expansion joint	43 days
Oil and Natural Gas ltd	ONGCindia.in	cleaning of sump tank	10 days
Oil and Natural Gas ltd	ONGCindia.in	Installation of pupms	15 days
Mahanagar Gas ltd	mahanagargas.in	Installation of cooler tower	52 days
Mahanagar Gas ltd	mahanagargas.in	Installation of Expansion joint	40 days
Mahanagar Gas ltd	mahanagargas.in	erection of spools	55 days
Mahanagar Gas ltd	mahanagargas.in	Cleaning of stainer	4 days
reliance Petroleum ltd	reliancepetroleum.in	Installation of electic compressor	35 days
reliance Petroleum ltd	reliancepetroleum.in	Installation of Heat exchanger	34 days
reliance Petroleum ltd	reliancepetroleum.in	cleaning of sump tank	10 days
reliance Petroleum ltd	reliancepetroleum.in	erection of chiller	34 days
reliance Petroleum ltd	reliancepetroleum.in	Installation of pupms	15 days

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