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Scotford Upgrader		
Area/Location	249– Pipeline	OS-OCA Number: QUE1-0249-00-UPG-NOP019
Title	**Quest Pipeline First Fill**	Revision Number: 2
		Issue Date: 05/20/2015
		Approved By: John Asselman
Classification	In-Hand	Equipment Name: Pipeline
Type	Normal Operating Procedure	Page 1 of 28

Purpose

This procedure details the activities to safely commission the Quest CCS project pipeline and wellsites.

Prerequisites

- Care, custody and control (CCC) turned over to Shell
- Production Specialist (PS) approval to proceed with commissioning
- Intent to commission notifications made
- Boundary Limit Interface Control Form
- PSSR Complete
- WIT & SIT Reporting Complete

HSSE Requirements

- Steps in this procedure identify activities that support bowtie barriers. PTL approval required for deviation from identified steps.
- Community Liaison Officer notifications required
- Quest Emergency Response Plan
- Standard Personal Protective Equipment (PPE) as required
- Workplace Hazardous Materials Information System (WHMIS)
- Material Safety Data Sheets (MSDS)
- MSDS #1000-318 Nitrogen (Gas/Liquid)
- MSDS #5300-957-E Carbon Dioxide

- Safe Work Practices (SWP)
- CO2 SWP
- SWP 0001 Use of Safe Work Permits
- SWP 0007 Gas Testing
- SWP 1103 Safe Use of Nitrogen
- SWP 2206 Safe Practice for Plugs and Caps on Drains, Vents, and Other Connections
- SWP 2207 Safe Practices for Thermal Expansion
- SWP 2208 Safe Practice for Relief Valves
- SWP 3304 Upgrader Isolation
- SWP 3304U Safe Blinding Practices – Upgrader
- SWP 6604 Safe Work Practices for Flagging and Barricades
- SWP 4403 Driving Safety
- Double hearing protection required.

References

- Marked up P&IDs
    - 702.001
    - 702.005
    - 701.002
    - 249.001
    - 249.003
    - 249.005
    - 249.007
    - 249.010
    - 247.014
    - 702.003
    - 701.001
    - 701.003
    - 249.002
    - 249.004
    - 249.006
    - 249.008
    - 247.010
    -

Activities

1.	Configure LBV 6 For Venting
2.	Configure Wellsite #1 For Venting
3.	Configure Wellsite #2 For Venting
4.	Configure Wellsite #3 For Venting
5.	12” Line Fill - Pressure/Rate Requirements
6.	Wellsite #1 Lateral Line Fill
7.	Wellsite #2 Lateral Line Fill
8.	Wellsite #3 Lateral Line Fill
9.	Initial Line Pack Requirements

1. Configure LBV 6 For Venting				
Step	**Action By**	**Action**	**Information**	**Initial/ Date/ Time**
1.0	FO	**Verify** Vent and Drain List.	Check system to ensure vents and drains are positioned as per lists	
1.1	FO	**Verify** Carseal List.		
1.2	FO	**Verify** Blind List.		
1.3	FO	**Ensure** launcher SP-249001 8” flow line block valve is **open**	V-1 P&ID: 249.001	
1.4	PO/FO	**Ensure** LBV #1 site UV-249102 valve is **open** and in **manual**.	V-2 P&ID: 249.002 I-249001 and I-249101 Impairment required. Reference LBV Operating Procedure.	
1.5	PO/FO	**Ensure** LBV #2 site UV-249202 valve is **open** and in **manual**.	V-3 P&ID: 249.003 I-249001 and I-249201 Impairment required. Reference LBV Operating Procedure.	

1. Configure LBV 6 For Venting				
Step	**Action By**	**Action**	**Information**	**Initial/ Date/ Time**
1.6	PO/FO	**Ensure** LBV #3 site UV-249302 valve is **open** **And** in **Manual**.	V-4 P&ID: 249.004 I-249001 and I-249301 Impairment required. Reference LBV Operating Procedure.	
1.7	FO	**Ensure** receiver SP-249002 12" flow line block valve is **Open.**	V-5 P&ID: 249.005	
1.8	FO	**Ensure** launcher SP-249003 12" flow line block valve is **Open.**	V-6 P&ID: 249.005	
1.9	PO/FO	**Ensure** LBV #4 site UV-249402 valve is **Open** And in **Manual**.	V-7 P&ID: 249.006 I-249001 and I-249401 Impairment required. Reference LBV Operating Procedure.	
1.10	PO/FO	**Ensure** LBV #5 site UV-249502 valve is **Open** And in **Manual**.	V-8 P&ID: 249.007 I-249001 and I-249501 Impairment required. Reference LBV Operating Procedure.	
1.11	PO/FO	**Ensure** LBV #6 site UV-249602 valve is **Open** And in **Manual**.	V-9 P&ID: 249.008 I-249001 and I-249601 Impairment required. Reference LBV Operating Procedure.	
1.12	FO	**Ensure** receiver SP-249004 6" flow line block valve is **Open.**	V-16 P&ID: 249.010	
1.13	FO	**Complete** isolation list for blind removals on LBV #6.	Reference SWP 3304 Upgrader isolation.	
1.14	PO/FO	**Ensure** bypass valve PV-249604 is **closed** **And** in **Manual**.	V-14 P&ID: 249.008 I-249001 and I-249601 Impairment required.	

1. Configure LBV 6 For Venting				
Step	**Action By**	**Action**	**Information**	**Initial/ Date/ Time**
1.15	FO	**Close** the upstream block valve on the bypass line downstream of UV-249602. (4”-GC-249605-CO2Z).	V-10 P&ID: 249.008	
1.16	FO	**Close** 2” DBB vent valve on the bypass line downstream of UV-602 (4”-GC-249605-CO2Z) **And** **Remove** blind flange.	V-11 P&ID: 249.008 B-1 P&ID: 249.008 Pipefitter support required. Caution: Trapped Pressure.	
1.17	FO	**Slowly open** 2” DBB vent valve on the bypass line downstream of UV-602 (4”-GC-249605-CO2Z) to vent pressure to atmosphere.	V-11 P&ID: 249.008	
1.18	FO	**Slowly open both** H stack block valves. (4”-GC-249608-PJH(C)) **And** (4”-GC-249604-PJH(C))	V-13 P&ID: 249.008 V-15 P&ID: 249.008	
1.19	PO	**Open** PV-249604.	V-14 P&ID: 249.008	
1.20	FO	**Close** the downstream block valve on the bypass line downstream of UV-249602. (4”-GC-249605-CO2Z).	V-12 P&ID: 249.008	
1.21	FO	**Swing** downstream spectacle blind to **Open** position.	B-2 P&ID: 249.008 Pipefitter support required.	
1.22	PO	**Close** PV-249604.	V-14 P&ID: 249.008	
1.23	FO	**Close** the downstream H stack block valve. (4”-GC-249604-PJH(C)).	V-13 P&ID: 249.008	
1.24	FO	**Close** 2” DBB vent valve on the bypass line downstream of UV-602 (4”-GC-249605-CO2Z) **And** **Install** blind flange.	V-11 P&ID: 249.008 B-7 P&ID: 249.008 Pipefitter support required.	

1. Configure LBV 6 For Venting				
Step	**Action By**	**Action**	**Information**	**Initial/ Date/ Time**
1.25	FO	**Open** 2” DBB vent valve on the bypass line downstream of UV-249602 (4”-GC-249605-CO2Z). **And** (CSO)	V-11 P&ID: 249.008	
1.26	FO	**Open** the downstream block valve on the bypass line downstream of UV-602. (4”-GC-249605-CO2Z). **And** (CSO)	V-12 P&ID: 249.008	
1.27	FO	**Slowly Open** the upstream block valve on the bypass line downstream of UV-602. (4”-GC-249605-CO2Z). **And** (CSO)	V-10 P&ID: 249.008 Site is now pressurized to PV-604 with 175kPa N2 and ready for venting.	

2. Configure Wellsite #1 For Venting				
Step	**Action By**	**Action**	**Information**	**Initial/ Date/ Time**
2.0	FO	**Complete** isolation list for blind removals.	Reference SWP 3304 Upgrader isolation.	
2.1	PO/FO	**Ensure** FV-702104 is **closed** **And** in **manual**.	V-19 P&ID: 702.001 I-702104 Impairment required.	
2.2	FO	**Ensure** the 1” startup valve around FV-702104 is **closed**.	V-18 P&ID: 702.001	
2.3	FO	**Ensure** UV-702106 is **closed** And in **Manual**.	V-20 P&ID: 702.001 I-702104 Impairment required.	
2.4	FO	**Close** 1st 2” valve to vent header downstream of FV-702104.	V-21 P&ID: 702.001	
2.5	FO	**Ensure** 2” block valve off bottom of filter housing is **Closed**	V-17 P&ID: 702.001	

2. Configure Wellsite #1 For Venting				
Step	**Action By**	**Action**	**Information**	**Initial/ Date/ Time**
2.6	FO	**Ensure** 2” block valve off side of filter housing is **Closed.**	V-53 P&ID: 702.001	
2.7	FO	**Close** 2” DBB vent valve upstream of spectacle blind **And** **Remove** blind flange.	V-22 P&ID: 702.001 B-3 P&ID: 702.001 Pipefitter support required. Caution: Trapped Pressure.	
2.8	FO	**Slowly open** DBB vent valve.	V-22 P&ID: 702.001	
2.9	FO	**Close** 2” block valve downstream of choke.	V-26 P&ID: 702.001	
2.10	FO	**Open** 2” manual choke.	V-25 P&ID: 702.001	
2.11	FO	**Close 2”** DBB vent valve upstream of vent choke **And** **Remove** blind flange.	V-24 P&ID: 702.001 B-5 P&ID: 702.001 Pipefitter support required. Caution: Trapped Pressure.	
2.12	FO	**Open** 2” DBB vent valve upstream of vent choke.	V-24 P&ID: 702.001	
2.13	FO	**Close** 2” block valve upstream of spectacle blind.	V-23 P&ID: 702.001	
2.14	FO	**Flip** spectacle blind to **Open** position.	B-4 P&ID: 702.001 Pipefitter support required.	
2.15	FO	**Close** 2” DBB vent valve upstream of vent choke **And** **Install** blind flange.	V-24 P&ID: 702.001 B-5 P&ID: 702.001 Pipefitter support required.	
2.16	FO	**Open** 2” DBB vent valve upstream of vent choke.	V-24 P&ID: 702.001	

2. Configure Wellsite #1 For Venting				
Step	**Action By**	**Action**	**Information**	**Initial/ Date/ Time**
2.17	FO	**Close** 2” DBB vent valve upstream of spec blind **And** **Install** blind flange.	V-22 P&ID: 702.001 B-3 P&ID: 702.001 Pipefitter support required.	
2.18	FO	**Open** 2” DBB vent valve upstream of spectacle blind.	V-22 P&ID: 702.001	
2.19	FO	**Open** 2” block valve upstream of spectacle blind.	V-23 P&ID: 702.001	
2.20	FO	**Open** 2” block valve downstream of vent choke.	V-26 P&ID: 702.001	
2.21	FO	**Slowly open** 1st 2” valve to vent header downstream of FV-702104.	V-21 P&ID: 702.001 Site is now pressurized to FV-104 with 175kPa N2 and ready for venting.	

3. Configure Wellsite #2 For Venting				
Step	**Action By**	**Action**	**Information**	**Initial/ Date/ Time**
3.0	FO	**Complete** isolation list for blind removals.	Reference SWP 3304 Upgrader isolation.	
3.1	PO/FO	**Ensure** FV-702204 is **closed** **And** in **Manual**.	V-29 P&ID: 702.003 I-702204 Impairment required.	
3.2	FO	**Ensure** the 1” startup valve around FV-702204 is closed.	V-28 P&ID: 702.003	
3.3	PO/FO	**Ensure** UV-702206 is **closed** **And** in **Manual**.	V-30 P&ID: 702.003 I-702204 Impairment required.	
3.4	FO	**Close** 1st 2” valve to vent header downstream of FV-204.	V-31 P&ID: 702.003	
3.5	FO	**Ensure** 2” block valve off bottom of filter housing is **closed**	V-27 P&ID: 702.003	

3. Configure Wellsite #2 For Venting				
Step	**Action By**	**Action**	**Information**	**Initial/ Date/ Time**
3.6	FO	**Ensure** 2” block valve off side of filter housing is **closed.**	V-54 P&ID: 702.003	
3.7	FO	**Close** 2” DBB vent valve upstream of spec blind **And** **Remove** blind flange.	V-32 P&ID: 702.003 B-6 P&ID: 702.003 Pipefitter support required. Caution: Trapped Pressure.	
3.8	FO	**Slowly open** DBB vent valve.	V-32 P&ID: 702.003	
3.9	FO	**Close** 2” block valve downstream of vent choke.	B-36 P&ID: 702.003	
3.10	FO	**Open** 2” manual choke	V-35 P&ID: 702.003	
3.11	FO	**Close 2”** DBB vent valve upstream of vent choke **And** **Remove** blind flange.	V-34 P&ID: 702.003 B-8 P&ID: 702.003 Pipefitter support required. Caution: Trapped Pressure.	
3.12	FO	**Open** 2” DBB vent valve upstream of vent choke.	V-34 P&ID: 702.003	
3.13	FO	**Close** 2” block valve upstream of spectacle blind.	V-33 P&ID: 702.003	
3.14	FO	**Flip** spectacle blind to **open** position.	B-7 P&ID: 702.003 Pipefitter support required.	
3.15	FO	**Close** 2” DBB vent valve upstream of vent choke **And** **Install** blind flange.	V-34 P&ID: 702.003 B-8 P&ID: 702.003 Pipefitter support required	
3.16	FO	**Open** 2” DBB vent valve upstream of vent choke.	V-34 P&ID: 702.003	

3. Configure Wellsite #2 For Venting				
Step	**Action By**	**Action**	**Information**	**Initial/ Date/ Time**
3.17	FO	**Close** 2” DBB vent valve upstream of spec blind **And** **Install** blind flange.	V-32 P&ID: 702.003 B-6 P&ID: 702.003 Pipefitter support required	
3.18	FO	**Open** 2” DBB vent valve upstream of spectacle blind.	V-32 P&ID: 702.003	
3.19	FO	**Open** 2” block valve upstream of spectacle blind.	V-33 P&ID: 702.003	
3.20	FO	**Open** 2” block valve downstream of vent choke.	V-36 P&ID: 702.003	
3.21	FO	**Slowly open** 1st 2” valve to vent header downstream of FV-702204.	V-31 P&ID: 702.003 Site is now pressurized to FV-204 with 175kPa N2 and ready for venting.	

4. Configure Wellsite #3 For Venting				
Step	**Action By**	**Action**	**Information**	**Initial/ Date/ Time**
4.0	FO	**Complete** isolation list for blind removals.	Reference SWP 3304 Upgrader isolation.	
4.1	PO/FO	**Ensure** FV-702304 is **closed** **And** in **Manual**.	V-39 P&ID: 702.005 I-702304 Impairment required.	
4.2	FO	**Ensure** the 1” startup valve around FV-702304 is closed.	V-38 P&ID: 702.005	
4.3	PO/FO	**Ensure** UV-702306 is **closed** **And** in **Manual**.	V-40 P&ID: 702.005 I-702304 Impairment required.	
4.4	FO	**Close** 1st 2” valve to vent header downstream of FV-702304.	V-41 P&ID: 702.005	
4.5	FO	**Ensure** 2” block valve off bottom of filter housing is **Closed**	V-37 P&ID: 702.005	

4. Configure Wellsite #3 For Venting				
Step	**Action By**	**Action**	**Information**	**Initial/ Date/ Time**
4.6	FO	**Ensure** 2” block valve off side of filter housing is **Closed.**	V-55 P&ID: 702.005	
4.7	FO	**Close** 2” DBB vent valve upstream of spec blind **And** **Remove** blind valve.	V-42 P&ID: 702.005 B-9 P&ID: 702.005 Pipefitter support required. Caution: Trapped Pressure.	
4.8	FO	**Slowly open** 2” DBB vent valve upstream of spec blind.	V-42 P&ID: 702.005	
4.9	FO	**Close** 2” block valve downstream of vent choke.	V-46 P&ID: 702.005	
4.10	FO	**Open** 2” manual choke	V-45 P&ID: 702.005	
4.11	FO	**Close 2”** DBB vent valve upstream of vent choke **And** **Remove** blind flange.	V-44 P&ID: 702.005 B -11 P&ID: 702.005 Pipefitter support required. Caution: Trapped Pressure.	
4.12	FO	**Open** 2” DBB vent valve upstream of vent choke.	V-44 P&ID: 702.005	
4.13	FO	**Close** 2” block valve upstream of spectacle blind.	V-43 P&ID: 702.005	
4.14	FO	**Flip** spectacle blind to **open** position.	B-10 P&ID: 702.005 Pipefitter support required.	
4.15	FO	**Close** 2” DBB vent valve upstream of vent choke **And** **Install** blind flange.	V-44 P&ID: 702.005 B-11 P&ID: 702.005	
4.16		**Open** 2” DBB vent valve upstream of vent choke.	V-44 P&ID: 702.005	
4.17	FO	**Close** 2” DBB vent valve upstream of spec blind **And** **Install** blind flange.	V-42 P&ID: 702.005 B-9 P&ID: 702.005	

4. Configure Wellsite #3 For Venting				
Step	**Action By**	**Action**	**Information**	**Initial/ Date/ Time**
4.18	FO	**Open** 2” DBB vent valve upstream of spectacle blind.	V-42 P&ID: 702.005	
4.19	FO	**Open** 2” block valve upstream of spectacle blind.	V-43 P&ID: 702.005	
4.20	FO	**Open** 2” block valve downstream of vent choke.	V-46 P&ID: 702.005	
4.21	FO	**Slowly open** 1st 2” valve to vent header downstream of FV-702304.	V-41 P&ID: 702.005 Site is now pressurized to FV-304 with 175kPa N2 and ready for venting.	

Note:
Status Check.

- Capture unit is online with full compressor discharge to the Scotford vent header.
- Compressor discharge remains isolated from pipeline
- Entire pipeline is under 175kpa N2 preservation.
- LBV-6 site is lined up to vent N2 as required
- Well site 1/2/3 are all lined up to vent N2 as required for lateral line fill.
- All wells remain isolated from pipeline via well site ESDs

Note:
Operations must ensure a continuous presence on locations venting to atmosphere.

5. 12” Line Fill - Pressure/Rate Requirements				
Step	**Action By**	**Action**	**Information**	**Initial/ Date/ Time**
5.0	FO	**Ensure** 10” flow valve downstream of XV-247001 is **Closed.**	V-48 P&ID: 247.010	
5.1	FO	**Ensure** 6” start-up bypass valve downstream of XV-247001 is **Closed.**	V-49 P&ID: 247.010	
5.2	FO	**Ensure** XV-247001 is **closed.**	V-47 P&ID: 247.010	

5. 12” Line Fill - Pressure/Rate Requirements				
Step	**Action By**	**Action**	**Information**	**Initial/ Date/ Time**
5.3	FO	**Close** 1” DBB vent valve downstream of E24707A/B **And** **Install** blind flange.	V-51 P&ID: 247.014 B-11 P&ID: 247.014 Pipefitter support required	
5.4	FO	**Open** 1” DBB vent valve downstream of E-24707A/B. **And** (CSO)	V-51 P&ID: 247.014	
5.5	FO	**Slowly Open** 1st 8” block valve downstream of E-24707A/B.	V-50 P&ID: 247.014	
5.6	FO	**Slowly Open** 2nd 8” block valve downstream of E-24707A/B.	V-52 P&ID: 247.014	
5.7	FO	**Ensure** 175 kPa downstream of XV-247001.		
5.8	PO	**Open** XV-247001.	V-47 P&ID: 247.010	
5.9	FO	**Inform** panel of intent to open start-up bypass		
5.10	PO	**Ensure** Production Team Lead, Site Supervisor, and CLO have made appropriate notifications **And** Rotating Engineer is on site.		
5.11	FO	**Slowly open** start-up bypass valve downstream of XV-247001 Proceed with rotating engineer approval.	V-49 P&ID: 247.010 FO to maintain communications with panel at all times.	
5.12	FO	**Inform** panel of flow into 12” pipeline.		
5.13	PO	**Inform** FO at LBV #6 of intent to begin venting		
5.14	FO	Limit access of non essential personnel during venting activity		
5.15	PO	**Fully open** PV-249604 in manual.	V-14 P&ID: 249.008	

Caution
Steps 5.16-5.17 support bowtie barriers. PTL approval required for deviation.

5.16	PO	**Monitor** E-24707 A/B operation to **Maintain** discharge temperature above **43 Deg C**.	Optimal temp 50-55 Deg C. XV-001 trip at 60 Deg C.	
5.17	PO	**Monitor** to **ensure** LBV #5 pressure does not exceed 1500kPa And E-24707 A/B does not exceed 4000kPa.	PO to communicate with Capture FO to manually vary the start-up bypass to ensure optimal flow rate and pressure.	
5.18	FO	**Inform** panel when N2 displacement to CO2 is complete at LBV #6	Displacement to be determined by visual/audio observation and time based purge.	
5.19	PO	**Close** PV-249604.	V-14 P&ID: 249.008	

Note:
If personnel are available, steps 6-8 (Wellsite lateral line fills) can be started at this time.

All following pipefitting activities must be completed before increasing pipeline pressure above 4000 kPag (Step 9.0).

5.20	FO	**Complete** isolation list for blinds to be swung to closed position.	Reference SWP 3304 Upgrader isolation.	
5.21	FO	**Close** the upstream block valve on the bypass line downstream of UV-249602. (4”-GC-249605-CO2Z).	V-10 P&ID: 249.008	
5.22	PO	**Open** PV-249604 to release pressure.	V-14 P&ID: 249.008	
5.23	FO	**Open** the downstream H stack block valve. (4”-GC-249604-PJH(C)).	V-13 P&ID: 249.008	
5.24	FO	**Close** the downstream block valve on the bypass line downstream of UV-249602 (4”-GC-249605-CO2Z).	V-12 P&ID: 249.008	

5.25	FO	**Close** 2” DBB vent valve on the bypass line downstream of UV-249602 (4”-GC-249605-CO2Z) **And** **Remove** blind flange.	V-11 P&ID: 249.008 B-1 P&ID: 249.008 Pipefitter support required. Caution: Trapped Pressure.	
5.26	FO	**Slowly vent** pressure to atmosphere.	V-11 P&ID: 249.008	
5.27	FO	**Swing** downstream spectacle blind to **closed** position.	B-2 P&ID: 249.008 Pipefitter support required.	
5.28	FO	**Close** 2” DBB vent valve on the bypass line downstream of UV-602 (4”-GC-249605-CO2Z) **And** **Install** blind flange.	V-11 P&ID: 249.008 B-1 P&ID: 249.008 Pipefitter support required.	
5.29	FO	**Open** 2” DBB vent valve on the bypass line downstream of UV-602 (4”-GC-249605-CO2Z). **And** (CSO)	V-11 P&ID: 249.008	
5.30	PO	**Close** PV249604.	V-14 P&ID: 249.008 Remove I-249001 and I-249601 impairment.	
5.31	FO	**Open** the downstream block valve on the bypass line downstream of UV-602 (4”-GC-249605-CO2Z). **And** (CSO)	V-12 P&ID: 249.008	
5.32	FO	**Slowly open** the upstream block valve on the bypass line downstream of UV-602 (4”-GC-249605-CO2Z). **And**(CSO)	V-10 P&ID: 249.008	
5.33	FO	**Close both** 4” H Stack block valves • (4”-VA-24608-PJH(C) And • (4”-GC-249604-PJH(C)).	V-13 P&ID: 249.008 V-15 P&ID: 249.008	
5.34	FO	**Ensure** both H Stack vent caps are returned to the closed position		

6. Wellsite #1 Lateral Line Fill				
Step	**Action By**	**Action**	**Information**	**Initial/ Date/ Time**
6.0	FO	**Inform** panel that wellsite prepared for venting.		
6.1	PO	**Ensure** Production Team Lead, Site Supervisor, and CLO have made appropriate notifications.		
6.2	PO	**Inform** FO at wellsite #1 of intent to begin venting.		
6.3	FO	Limit access of non essential personnel during venting activity		
6.4	PO	**Fully open** FV-702104.	V-19 P&ID: 702.001	
6.5	PO	**Monitor** E-24707 A/B operation to **maintain** discharge temperature above 43 Deg C.	Optimal temp 50-55 Deg C. XV-001 trip at 60 Deg C.	

Caution

Step 6.6 supports bowtie barriers. PTL approval required for deviation.

6.6	PO	**Monitor** to **ensure** LBV #5 pressure does not exceed 1500kPa And E-24707 A/B does not exceed 4000kPa.	CO to communicate with Capture FO to manually vary the start-up bypass to ensure optimal flow rate and pressure.	
6.7	FO	**Inform** panel when displacement to CO2 is complete at wellsite #1 vent header.		
6.8	PO	**Close** FV-702104.	V-19 P&ID: 702.001 If personnel are available, step 7 (Wellsite #2 fill) can be started at this time.	
6.9	FO	**Complete** isolation log for blind removals.	Reference SWP 3304 Upgrader isolation.	
6.10	FO	**Close** 1st 2” valve to vent header downstream of FV-702104.	V-21 P&ID: 702.001	

6.11	FO	**Close** 2” block valve downstream of vent choke.	V-26 P&ID: 702.001	
6.12	FO	**Ensure** 2” block valve off bottom of filter housing is **Closed**	V-17 P&ID: 702.001	
6.13	FO	**Ensure** 2” block valve off side of filter housing is **Closed.**	V-53 P&ID: 702.003	
6.14	FO	**Close** 2” DBB vent valve upstream of spectacle blind **And** **Remove** blind flange.	V-22 P&ID: 702.001 B-3 P&ID: 702.001 Pipefitter support required. Caution: Trapped Pressure.	
6.15	FO	**Slowly open** 2” DBB vent valve upstream of spectacle blind.	V-22 P&ID: 702.001	
6.16	FO	**Close** 2” DBB vent valve upstream of vent choke **And** **Remove** blind flange.	V-24 P&ID: 702.001 B-5 P&ID: 702.001 Pipefitter support required.	
6.17	FO	**Slowly open** 2” DBB vent valve upstream of vent choke.	V-24 P&ID: 702.001	
6.18	FO	**Close** 2” block valve upstream of spectacle blind.	V-23 P&ID: 702.001	
6.19	FO	**Flip** spectacle blind to **Closed** position.	B-4 P&ID: 702.001 Pipefitter support required.	
6.20	FO	**Close** 2” DBB vent valve upstream of vent choke **And** **Install** blind flange.	V-24 P&ID: 702.001 B-5 P&ID: 702.001 Pipefitter support required.	
6.21	FO	**Close** vent choke.	V-25 P&ID: 702.001	
6.22	FO	**Close** 2” DBB vent valve upstream of spectacle blind **And** **Install** blind flange.	V-22 P&ID: 702.001 B-3 P&ID: 702.001 Pipefitter support required.	
6.23	FO	**Open** 2” DBB vent valve upstream of spectacle blind. **And** (CSO)	V-22 P&ID: 702.001	

6.24	FO	**Open** 2" block valve upstream of spectacle blind. **And** (CSO)	V-23 P&ID: 702.001	
6.25	FO	**Slowly open** 1st 2" valve to vent header downstream of FV-702104. **And** (CSO)	V-21 P&ID: 702.001	
6.26	PO	**Open** FV-702104. In Manual	V-19 P&ID: 702.001	

7. Wellsite #2 Lateral Line Fill				
Step	**Action By**	**Action**	**Information**	**Initial/ Date/ Time**
7.0	FO	**Inform** panel that wellsite prepared for venting.		
7.1	PO	**Ensure** Production Team Lead, Site Supervisor, and CLO have made appropriate notifications		
7.2	PO	**Inform** FO at wellsite #2 of intent to begin venting.		
7.3	FO	Limit access of non essential personnel during venting activity		
7.4	PO	**Fully open** FV-702204.	V-29 P&ID: 702.003	
7.5	PO	**Monitor** E-24707 A/B operation to **maintain** discharge temperature above 43 Deg C.	Optimal temp 50-55 Deg C. XV-247001 trip at 60 Deg C.	

Caution

Step 7.6 supports bowtie barriers. PTL approval required for deviation.

7.6	PO	**Monitor** to **ensure** LBV #5 pressure does not exceed 1500kPa And E-24707 A/B does not exceed 4000kPa.	PO to communicate with Capture FO to manually vary the start-up bypass to ensure optimal flow rate and pressure.	
7.7	FO	**Inform** panel when displacement to CO2 is complete at wellsite #2 vent header.		

7.8	PO	**Close** FV-702204.	V-29 P&ID: 702.003 If personnel are available, step 8 (Wellsite #3 fill) can be started at this time.	
7.9	FO	**Complete** isolation list for blind removals.	Reference SWP 3304 Upgrader isolation.	
7.10	FO	**Close** 1st 2" valve to vent header downstream of FV-702204.	V-31 P&ID: 702.003	
7.11	FO	**Close** 2" block valve downstream of vent choke.	V-36 P&ID: 702.003	
7.12	FO	**Ensure** 2" block valve off bottom of filter housing is **closed**	V-37 P&ID: 702.003	
7.13	FO	**Ensure** 2" block valve off side of filter housing is **closed.**	V-54 P&ID: 702.003	
7.14	FO	**Close** 2" DBB vent valve upstream of spectacle blind **And** **Remove** blind flange.	V-32 P&ID: 702.003 B-6 P&ID: 702.003 Pipefitter support required. Caution: Trapped Pressure.	
7.15	FO	**Slowly open** 2" DBB vent valve upstream of spectacle blind.	V-32 P&ID: 702.003	
7.16	FO	**Close** 2" DBB vent valve upstream of vent choke **And** **Remove** blind flange.	V-34 P&ID: 702.003 B-8 P&ID: 702.003 Pipefitter support required.	
7.17	FO	**Slowly open** 2" DBB vent valve upstream of vent choke.	V-34 P&ID: 702.003	
7.18	FO	**Close** 2" block valve upstream of spectacle blind.	V-33 P&ID: 702.003	
7.19	FO	**Activate** isolation card.	Reference SWP 3304 Upgrader isolation.	
7.20	FO	**Flip** spectacle blind to **closed** position.	B-7 P&ID: 702.003 Pipefitter support required.	
7.21	FO	**Close** 2" DBB vent valve upstream of vent choke **And** **Install** blind flange.	V-34 P&ID: 702.003 B-8 P&ID: 702.003 Pipefitter support required.	

7.22	FO	**Close** vent choke.	V-35 P&ID: 702.003	
7.23	FO	**Close** 2” DBB vent valve upstream of spectacle blind **And** **Install** blind flange.	V-32 P&ID: 702.003 B-6 P&ID: 702.003 Pipefitter support required.	
7.24	FO	**Open** 2” DBB vent valve upstream of spectacle blind. **And** (CSO)	V-32 P&ID: 702.003	
7.25	FO	**Open** 2” block valve upstream of spectacle blind. **And** (CSO)	V-33 P&ID: 702.003	
7.26	FO	**Slowly open** 1st 2” valve to vent header downstream of FV-702204. **And** (CSO)	V-31 P&ID: 702.003	
7.27	PO	**Open** FV-702204. in Manual	V-29 P&ID: 702.003	

8. Wellsite #3 Lateral Line Fill				
Step	**Action By**	**Action**	**Information**	**Initial/ Date/ Time**
8.0	FO	**Inform** panel that wellsite prepared for venting.		
8.1	PO	**Ensure** Production Team Lead, Site Supervisor, and CLO have made appropriate notifications		
8.2	PO	**Inform** FO at wellsite #3 of intent to begin venting		
8.3	FO	Limit access of non essential personnel during venting activity		
8.4	PO	**Fully open** FV-702304 in Manual.	V-39 P&ID: 702.005	
8.5	PO	**Monitor** E-24707 A/B operation to **Maintain** discharge temperature above 43 Deg C.	Optimal temp 50-55 Deg C. XV-001 trip at 60 Deg C.	

Caution
Step 8.6 supports bowtie barriers. PTL approval required for deviation.

8.6	PO	**Monitor** to **ensure** LBV #5 pressure does not exceed 1500kPa **And** E-24707 A/B does not exceed 4000kPa.	PO to communicate with Capture FO to manually vary the start-up bypass to ensure optimal flow rate and pressure.	
8.7	FO	**Inform** panel when CO2 vent concentration at 100%.	Concentration to be determined by visual/audio observation and time based purge.	
8.8	PO	**Close** FV-702304	V-39 P&ID: 702.005	
8.9	FO	**Complete** isolation list for blind removals.	Reference SWP 3304 Upgrader isolation.	
8.10	FO	**Close** 1st 2” valve to vent header downstream of FV-702304.	V-41 P&ID: 702.005	
8.11	FO	**Close** 2” block valve downstream of vent choke.	V-46 P&ID: 702.005	
8.12	FO	**Ensure** 2” block valve off bottom of filter housing is **closed**	V-37 P&ID: 702.005	
8.13	FO	**Ensure** 2” block valve off side of filter housing is **closed.**	V-55 P&ID: 702.003	
8.14	FO	**Close** 2” DBB vent valve upstream of spectacle blind **And** **Remove** blind flange.	V-42 P&ID: 702.005 B-9 P&ID: 702.005 Pipefitter support required. Caution: Trapped Pressure.	
8.15	FO	**Slowly open** 2” DBB vent valve upstream of spectacle blind.	V-42 P&ID: 702.005	
8.16	FO	**Close** 2” DBB vent valve upstream of vent choke **And** **Remove** blind flange.	V-44 P&ID: 702.005 B-11 P&ID: 702.005 Pipefitter support required.	
8.17	FO	**Slowly open** 2” DBB vent valve upstream of vent choke.	V-44 P&ID: 702.005	
8.18	FO	**Close** 2” block valve upstream of spectacle blind.	V-43 P&ID: 702.005	

8.19	FO	**Flip** spectacle blind to **closed** position.	B-10 P&ID: 702.005 Pipefitter support required.	
8.20	FO	**Close** 2” DBB vent valve upstream of vent choke **And** **Install** blind flange.	V-44 P&ID: 702.005 B-11 P&ID: 702.005 Pipefitter support required.	
8.21	FO	**Close** vent choke.	V-45 P&ID: 702.005	
8.22		**Close** 2” DBB vent valve upstream of spectacle blind **And** **Install** blind flange.	V-42 P&ID: 702.005 B-9 P&ID: 702.005 Pipefitter support required.	
8.23	FO	**Open** 2” DBB vent valve upstream of spectacle blind. **And** (CSO)	V-42 P&ID: 702.005	
8.24	FO	**Open** 2” block valve upstream of spectacle blind. **And** (CSO)	V-43 P&ID: 702.005	
8.25	FO	**Slowly open** 1st 2” valve to vent header downstream of FV-702304. **And** (CSO)	V-41 P&ID: 702.005	
8.26	PO	**Open** FV-702304. In Manual	V-39 P&ID: 702.005	

Note: Status Check

- Subsurface to advise as to pressurization of wells at this point prior to increasing to dense phase operation.
- Entire pipeline has been inventoried with CO2 at less than 1500kpa as read at LBV #5
- All re-instatement pipefitting at vent locations must be completed prior to exceeding 4000kpa, the interruption of forward flow may be required to achieve this.
- Once all re-instatements have been completed the pipeline is now ready to increase in pressure to 4000kpa

9. Initial Line Pack Requirements				
Step	**Action By**	**Action**	**Information**	**Initial/ Date/ Time**
9.0	FO	**Slowly open** start-up bypass valve.		
9.1	PO	**Inform** Capture FO when line pressure has reached 4000kPa		
9.2	FO	**Inform** panel of intent to close start-up bypass valve.		
9.3	FO	**Slowly close** start-up bypass valve.	Pipeline to remain isolated for a minimum of 24 hours for temperature equalization.	
9.4	PO	**Close wellsite 1,** FV-702104 and set to **auto**.	V-19 P&ID: 702.001 Remove I-702104 impairment.	
9.5	PO	**Open wellsite 1,** UV-702106 and set to **auto**.	V-20 P&ID: 702.001 Remove I-702104 impairment.	
9.6	FO	**Open wellsite 1,** lower wellhead master valve.	V-50 Draw No: WH-12183	
9.7	FO	**Open wellsite 1,** upper wellhead master valve.	V-51 Draw No: WH-12183	
9.8	FO	**Open wellsite 1,** wellhead flow valve.	V-52 Draw No: WH-12183	
9.9	PO	**Slowly open wellsite 1,** FV-702104 to equalize pressure to wellbore.	V-19 P&ID: 702.001	

Note: Wellbore may equalize lower than 12” pipeline pressure if injection starts into the formation. Stop flow to wellbore when wellhead pressure has stabilized.

9.10	PO	**Close wellsite 2,** FV-702204.	V-29 P&ID: 702.003	
9.11	PO	**Open wellsite 2,** UV-702206 and set to **auto**.	V-30 P&ID: 702.003 Remove I-702204 impairment.	

9.12	FO	**Open wellsite 2,** lower wellhead master valve.	V-50 Draw No: WH-12183	
9.13	FO	**Open wellsite 2,** upper wellhead master valve.	V-51 Draw No: WH-12183	
9.14	FO	**Open wellsite 2,** wellhead flow valve.	V-52 Draw No: WH-12183	
9.15	PO	**Slowly open wellsite 2,** FV-702204 to equalize pressure to wellbore.	V-29 P&ID: 702.003	

Note: Wellbore may equalize lower than 12” pipeline pressure if injection starts into the formation. Stop flow to wellbore when wellhead pressure has stabilized.

9.16	PO	**Close wellsite 2,** FV-702204 and set to **auto**.	V-29 P&ID: 702.003 Remove I-702204 impairment.	
9.17	PO	**Close wellsite 3,** FV-702304 and set to **auto**.	V-39 P&ID: 702.005 Remove I-702304 impairment.	
9.18	FO	**Close** upstream 4” block valve on 4” riser.		
9.19	FO	**Close** downstream 4” block valve on 4” riser.		
9.20	FO	**Close** 2” DBB valve on 4” pipeline riser **And** **Remove** blind.	Pipefitter support required. Caution: Trapped Pressure.	
9.21	FO	**Slowly open** 2” DBB vent valve on 4” pipeline riser **And** **Release** pressure to atmosphere.		
9.22	FO	**Complete** leak checks on all untested joints And Verify pressure profile accuracy.	All untested joints are to be identified in handover documents.	

Note: Status Check

- Pipeline has been inventoried with CO2 and pressure checked at 4000kpa
- Wells remain isolated from the pipeline.
- Pipeline is ready to continue increasing in pressure towards 10000kpa and Super Critical phase.
- Once 10000kpa has been achieved, there should be no impairments in place or required.

9.23	FO	**Inform** panel of intent to open start-up bypass valve **And** **Ensure** Production Team Lead / Site Supervisor have made the appropriate notifications.	V-49 P&ID: 247.010	
9.24	FO	**Slowly open** start-up bypass valve downstream of XV-247001.	V-49 P&ID: 247.010	

Caution

Step 9.13 supports bowtie barriers. PTL approval required for deviation.

9.25	PO/FO	**Regulate** injection rate as per Rotating Engineers instructions.	V-49 P&ID: 247.010	
9.26	PO	**Monitor** E-24707 A/B operation to **maintain** discharge temperature at **43 Deg C**.		
9.27	PO	**Increase** pipeline pressure to 10,000 kPa.		

9.28	PO	**Place** UV102, UV202, UV302, UV402, UV502, and UV602 in **auto.**	V-2 P&ID: 249.002 V-3 P&ID: 249.003 V-4 P&ID: 249.004 V-7 P&ID: 249.006 V-8 P&ID: 249.007 V-9 P&ID: 249.008 Remove I-249001 impairment. Remove impairments: I-249101 I-249201 I-249301 I-249401 I-249501 I-249601	
9.29	PO	**Close** XV-001	V-47 P&ID: 247.010	
9.30	FO	**Open** 12” manual valve downstream of XV-001.	V-48 P&ID: 247.010	
9.31	FO	**Close** 6” start-up bypass valve.	V-49 P&ID: 247.010 The pipeline is now up to operating pressure and ready for operation.	
End of Procedure.				

Execution Review and Confirmation	**Role**	**Initials**
Pre-Execution	Lead	
Post-Execution	Lead	
Procedure Comments:		

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Approval

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