

Ethanolamines/Glycol Ethers Tier 3 Procedure

Section Number: 814

Issue Number: 1.5

Original Date: 11-11-91

Author: Terry P./Welton L.

Revision Date: 02-02-96

Title: Freeze Precaution Procedure

References: Glossary of equipment identification (text # 114)

814. Freeze Precaution Procedure:

1.0 Objective:

1.1 To take all water systems out of service or arrange the flows in such a manner as to prevent them from freezing during cold weather.

1.2 To monitor all water systems that might remain in service using the checklists provided.

2.0 Responsibility:

2.1 It is the responsibility of the operations supervisor and the senior operations specialist to ensure that this procedure is followed.

2.2 It is the responsibility of the senior operations specialist and the operations specialist to follow this procedure and complete all associated checklists.

3.0 Special Notations:

3.1 If the temperature is predicted to drop to 25 degrees f or less it will be necessary to put this procedure into effect.

3.2 All freeze protection valves should be monitored periodically using the checklists provided with the procedure.

3.3 Inform the plant insulator of any instrumentation or equipment which requires steam during cold weather in order for him to check the hot water tracing and the insulation on it.

3.4 Deluge guns should be considered as an option to wash off personnel if exposed to chemicals.

4.0	Area 1 Procedure:	yes	no
4.1	Complete utility station checklist		
4.2	Make sure E-113 has a cooling tower water flow		
4.3	Bleed the P-180 that is not on line		
4.4	Take a small 30# steam flow to the vent stack		
4.5	Put small flow on ej180 & any ejectors that are down		
4.6	Be sure DV-102 is recirculating & hot water tracing on		
4.7	Take a bleed on condensate line next to DV-143B		
4.8	Take bleed on 475# steam C/I to E110 if on the P series		
4.9	Take flow to E.O. from area one sump & D-180		
4.10	Check 30# steam trace on D108A/B, assure is in service		
4.11	Check ctw header legs on south end of area 1 (open)		
4.12	Open bleed on R103 sample cooler at southeast end of area 1		
4.13	Swap P-590 seal flush from process H2O to ctw before blowing out the process water header.		
4.14	Take bleed on steam & condensate to E117 if T115 is down		
4.15	Take small ctw flow through E-116 if T-115 is down		
4.16	Put a flow thru both condensate headers at D-110.		
4.17	Note: do not drain vent stack dip leg.		
4.18	Drain condensate pots, steam drops on towers that are down.		
4.19	Take a bleed on the condensate drop at E-130		
4.20	Verify FN500A is on variable speed and FN500B is down.		

5.0	Area 2 Procedure:	yes	no
5.1	Complete utility station checklist		
5.2	P-280 not on line bleed empty		
5.3	Take a flow to environmental operations from area two sump & D-280. Make sure ctw is turned on to P-580 & P-590. If Process water is no longer in service		
5.4	Bleed down the P-215 that is off line		
5.5	Take a small 30# steam flow to the vent stacks		
5.6	Check spare teg coolers on P-212's and P-201's		
5.7	Take a small flow on the condensate line to D-215		
5.8	Take a bleed on the 30# steam & condensate to R-201 shell		
5.9	Put a steam flow thru ej-280 & any ejector that is down		
5.10	Put a steam flow thru ej-201 that is down. Disconnect tube & let drain to slab. Tubing off drain line from ej201 just off of E-201 control loop		
5.11	Circulate dea tanks		
5.12	Put both FL-271 A/B in service		
5.13	Take bleeds on E-270-2 steam and condensate		
5.14	Make sure hot water plates are open on amines tanks		

5.15	Crack open bypass, take flow thru C/L on condensate make up to D-280		
5.16	Keep water flowing from D280 to D215 at all times, control the level by taking more flow to environmental operations are by taking a dump to slab. Crack bypass on D-280 condensate make-up		
5.17	Check ctw header dead legs on south end of Area II. (open)		
5.18	Swap P-580 seal flush from process water to ctw before Blowing out process water		
5.19	Note: do not drain vent stack dip legs		
5.20	Make sure cold condensate makeup has been switched & blown out. See cold condensate blowout procedure (814.14)		
5.21	Drain condensate pots, steam drops on towers that are down		
5.22	Take a condensate flow at the top of CF271 - CF272		
5.23	Open the CTW bypass on the A/C unit on top Bldg 5501		

6.0 Area III Through VIII Procedure:

yes

no

6.1	Complete utility station checklist		
6.2	Bleed empty condensate pumps not in service P511, P512, P525. Monitor level, temperature in D-525 every 1 to 2 hrs		
6.3	Bleed ctw pumps that are down back to the pump foundation		
6.4	Take flow to environmental operations from pss-1, T/T, T/C D/B & Area III sumps. Note: flow transmitter from Area III. Has steam tracing. Must be put on and checked.		
6.5	Put a small steam flow thru E-552 A/B		
6.6	Make sure water is on E-553 A/B		
6.7	Drain, blow condensate line to T/T, T/C rack & D/B		
6.8	Be sure heater is on in D/B, all doors not in use, closed		
6.9	Take water bleed on oil coolers, air coolers on air Compressor that is down. Run both air compressors if below 20 degrees f and drain potable water make up		
6.10	Nh3 scrubber is on list to be blown out with the process Water. Check to make sure secure.		
6.11	Turn on ricwell electric tracing for dock line if product Is in the line and then only with the direction of loading Supervisor or marine loading coordinator.		
6.12	Take bleed on potable water, men's bathroom shower & sink.		
6.13	Check make sure a bleed is off of discharge filters from C-550's and also at bottom of D-552		
6.14	Take bleed at both the 235# and 475# desuperheaters		
6.15	Drain condensate to amines pig trap		
6.16	Take bleed on heater in maintenance shop. Bleed is located outside near oil drum. Close doors to shop and start		

	heater.		
6.17	Blow DEA T/T load line back to storage tank block in valve		
6.18	Blow out safety showers and potable water system.		
6.19	Put blanket around air compressors for level 2 freeze. Level 2 freeze is when the temperature is forecast to drop. Below 20 degrees f. with wind chill factor - 10 degrees f. And will not rise above 32 degrees f. the next day.		
6.20	After putting blanket around air compressor put a steam. Hose on the water traps on the compressor discharge		
6.21	Start and run jlg's every 2 hours to assure they are in running condition. Also move where the north wind does not. Hit them directly and put steam under hoods when possible.		

7.0 Blowing Safety Showers:

yes

no

7.1	Shutdown P-570 and drain water		
7.2	Hook up air to D-570 to pressure up system		
7.3	Take bleeds on safety shower heads, eye wash stations let. Them purge with air. Use safety shower checklist to make. Sure that we don't miss any showers.		
7.4	Block in air and let system de-pad		

8.0 Blowing Potable Water:

yes

no

8.1	Close water supply to D-570 with block valve in pipe rack		
8.2	Open bleed on supply line at D-570 to drain line		
8.3	Block valves to toilets in d/b before blowing out potable water. Open valve to sink so water will bleed.		
8.4	Close block valve to d/b in pipe rack at D-510		
8.5	Hook up air hose and blow line to drumming building		
8.6	Close b/v to maintenance shop open bleed to let line drain		
8.7	Keep water flowing to office bldg. Check F.P.V.'s at block Limits in pipe rack at D-570, and east side of office bldg.		
8.8	Run water hose from hydrant on northwest side of maintenance shop into men's restroom with valve connection on the end to flush toilets.		

9.0 Fire Protection Valves (F.P.V.'s) Check Sheet: Is Valve Flowing?

	SPRINKLER SYSTEMS:	yes	no
9.1	Is valve flowing		
9.1.1	Cooling Tower		
9.1.2	Ammonia sphere DS-205		
9.1.3	Area II Reactor		

9.1.4	Drumming building		
9.1.5	Area I reactor		
9.1.6	2" manual drum loading		
	HYDRANTS:		
9.2	Northwest corner of shop		
9.2.1	Southwest corner of building 5501		
9.2.2	West of DV-511		
9.2.3	Southeast corner of drumming building		
9.2.4	South of R-201		
	DELUGE GUNS:		
9.3	East of cooling tower		
9.3.1	Roadway east of DV-143B		
9.3.2	Roadway east of DV-114		
9.3.3	Roadway east of DV-113		
9.3.4	Foam gun east of DV-103		
9.3.5	Roadway across from R-201		
9.3.6	South of R-201		
9.3.7	North of DV-511		
9.3.8	West of cooling tower		
9.3.9	Northwest of tank truck loading area		
9.3.10	Roadway west of DV-511		
9.3.11	Roadway west of DV-525A		
9.3.12	Northwest of E-215 exchanger		
9.3.13	T/C loading southwest of DV-144		
9.3.14	T/C loading southwest of DV-136		
9.3.15	T/C loading southwest of DV-125		
9.3.16	T/C loading northwest of DV-125		
9.3.17	Roadway east of DV-103		
9.3.18	Southeast of T/C loading racks		

NOTE: ALL SYSTEMS AND P.V.'S SHOULD BE CHECKED PERIODICALLY.

10.0 F.P.V.'s Not In Fire Protection Service:

yes

no

10.1	Potable water at block limits		
10.2	Potable water south side CT-500		
10.3	Potable water east side bldg 5501		
10.4	Process water at amines T/T rack		
10.5	Process water at G.E. T/T rack		
10.6	Process water at D-502		
10.7	Hot condensate at E-244		
10.8	Hot condensate at D-210		

11.0 Utility Checklist:

	Steam flow & process H2O Location and or description	YES	NO	VALVE POSITION
11.1	Southeast of C/R			
11.2	South of C-550B			
11.3	DV-511			
11.4	D-502			
11.5	Tank truck rack			
11.6	Drumming building down by D-105			
11.7	Drumming building east side			
11.8	Tank car rack bottom spot 9 & 10			
11.9	Tank car rack top spot 9 & 10			
11.10	Tank car rack bottom spot 3 & 4			
11.11	Tank car rack top spot 3 & 4			
11.12	Area III west of DV-136			
11.13	DV-145			
11.14	DV-126			
11.15	DV-255			
11.16	DV-278			
11.17	P-101			
11.18	E-244			
11.19	T-220			
11.20	T-250			
11.21	DV-273A/B			
11.22	Amines ejector deck			
11.23	T-140			
11.24	T-120			
11.25	DV-122A			
11.26	D-108			
11.27	P-104			
11.28	Process H2O north drum-line			
11.29	Process H2O east drum-line			
11.30	Process H2O north drumming building			
11.31	Computer room ac process H2O			
11.32	Process H2O to NH3 scrubber			
11.33	Process H2O to vent stacks			
11.34	Northeast proc H2O at NH3 spot			
11.35	Process H2O to P-580			
11.36	Process H2O to P-590			
11.37	All wash down stations			
11.38	DV-250 and DV-260			

12.0 Cold Condensate Checklist:

Date Printed: April 18, 1998

Page 6 Of 7

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	Location	Valve Position
12.1	Cold condensate at drumming building	
12.1.1	Cold condensate at E-119	
12.1.2	Cold condensate at tank truck amines top	
12.1.3	Cold condensate at tank truck amines bottom	
12.1.4	Cold condensate at tank car rack	
12.1.5	Cold condensate at VP-240	
12.1.6	Cold condensate at T-260	
12.1.7	Cold condensate at D-210	
12.1.8	Cold condensate at D-101	
12.1.9	Cold condensate P211A	
12.1.10	Cold condensate at amines pig trap	
12.1.11	Cold condensate to Dowanol side at tank truck	

13.0 Process Water Blowout Procedure:

- 13.1 Block in process block valve in pipe rack at west side of CT-500.
- 13.2 Open the bleed valve just downstream of the block valve to bleed the pressure off of the header.
- 13.3 Attach an air hose to the bleed valve in the pipe rack to pressure the header back up.
- 13.4 Take bleeds at all stations using the utility check sheet. Blow out all water hoses when possible.
- 13.5 Leave all bleeds open and shut off the air to allow the header to de-pad.
- 13.6 Disconnect the air hose and leave the bleed valve in the pipe rack open.
- 13.7 Swap seal flush on P-580 and P-590 from process water to cooling tower water before blowing out.
- 13.8 Close the outlet B/V on the seal flush pots on Area III, Tank Truck, Tank Car sump pumps.

14.0 Cold Condensate Blowout Procedure:

- 14.1 Before blocking in condensate at P-511's be sure to put D-215 make-up on D-280 flow and block in fresh make-up. Take a bleed on section of pipe at D-280, between block valves.
- 14.2 Block in condensate block valve just above P-511 A/B.
- 14.3 Open the bleed valve at the inlet of E-119 to allow the section of line from the block valve to e-219 to drain.
- 14.4 Attach an air hose to the bleed valve at E-119 to pressure the header up.

14.5 Take bleeds at all stations using the utility check sheet.

14.6 Leave all bleeds open and shut off the air to allow the header to de-pad.

14.7 Disconnect the air hose and leave the bleed valve at E-119 open.

14.8 Note: when putting the header back in service, close all bleeds using the check sheet to make sure no valves are left open.

15.0 Revisions

Revision No. 1	04-14-93	Added: 814.5.20, 814.12.1.11 & 814.14.8.
Revision No. 2	01-07-94	Added: 814..4.17 and 814.5.21
Revision No. 3	02-24-95	Changes made as a result of the January procedure review (see moc)
Revision No. 4	12-29-95	Yearly Review
Revision No. 5	02-02-96	Added 4.19, 4.20, 4.12