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NUSTAR ENERGY LTD

FUNCTIONAL SAFETY COMMITTEE

MINUTES OF MEETING

APRIL 2016

Rev	Date	By	Checked	Approved	Description	Client Ref.
A	29.03.16	D. R. Ransome		DRR	Issued as Pro-Forma for Meeting	Document No. NU001114_MIN
B	08.04.16	D. R. Ransome		DRR	Issued following Meeting	
C	22.11.16	D. R. Ransome	DRR 	Client	Actions Updated for Nov 2016 meeting	

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

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Appendices

E/550 Reports

These reports are now contained within a section of NuStar ASANA Faults and Activations



Meeting Date
5th April 2016

1 REVISION HISTORY

Rev	Description
A	Issued as Pro-Forma for meeting.
B	Issued following 5 th April meeting.
C	Actions Updated for Nov 2016 meeting



2 ACTION STATUS

2.1 Actions outstanding from Safety Committee Meetings

2.1.1 Actions outstanding from Safety Committee meeting 25th March 2015.

David F 1 Feb

NuStar Safety Com... 25th March 2015

2015 - 03 - Grangemouth liquiphant sliding sleeve levels need a better way of ensuring they are set to correct insertion

Following proof test, some switches were at different setting to previous years

IHLA adjusted set points.xlsx
IHLA alarm set points.xlsx

4 more comments

David Ransome changed the due date to March 8. 5 Oct, 2015

darren.peck@nustarenergy.com attached 13 Oct, 2015 at 20:30
IHLA adjusted set points.xlsx

darren.peck@nustarenergy.com attached 13 Oct, 2015 at 20:30
IHLA alarm set points.xlsx

darren.peck@nustarenergy.com 13 Oct, 2015 at 20:31
Dave
Attached latest tank IHLA settings from Grangemouth as requested by DF last week
Darren

David Faulkner changed the due date to February 1. 14 Oct, 2015
David Faulkner assigned to David Faulkner. 14 Oct, 2015







David Faulkner 14 Oct, 2015 at 07:28
Thanks Darren, I will include in February 2016 proof test.

David Ransome 5 Apr at 09:01
All sliding sleeves have been checked and conduit fitted to prevent incorrect setting.


David Ransome completed this Task. 5 Apr at 09:01



2.1.2 Actions outstanding from Safety Committee meeting October 2015.

 David F  30 Nov    



NuStar Safety Com... 7th October 2015

 **2015 - 05 - NuStar On-line documentation system to include all third party documentation**



Description



3 more comments

darren.peck@nustarenergy.com completed this task: 5 Nov, 2015

 **David Ransome** 23 Nov, 2015 at 12:54 
Documentation to be compiled for flippingbook

David Ransome changed the due date to April 29: 30 Mar

 **David Ransome** 30 Mar at 09:36 
This action is ongoing and should be completed by the end of April 2016








 **David Ransome** 7 Nov at 15:33 
Belfast Manual to be completed for November Safety Panel meeting

2.2 Actions outstanding from Functional Safety Assessments


The following list details all of the FSA's which have been conducted – the greyed out and ticked FSA's indicate all actions have been completed and the FSA is closed.

Add Task		View: All Tasks ▾
	Belfast FSA 4	31 Mar, 2015
	Belfast FSA 5 - Magnetrol Tanks 46 & 47	>
	Belfast FSA 5 - Magnetrol Tanks 4, 5 & 12	>
	Clydebank FSA 4	>
	Clydebank FSA 5 - Magnetrol Tanks 7 & 9	>
	Eastham FSA 4	31 Mar, 2015 >
	Eastham FSA 5 - Dockline 05 H & J Slab	>
	Eastham FSA 5 - Dockline 05 D Slab	>
	Eastham FSA 5 - Shell Modifications	>
	Eastham FSA 5 - Chloroform	>
	Eastham FSA 5 - Radar Ranging	>
	Grangemouth FSA 3	>
	Grangemouth FSA 4	>
	Grangemouth FSA 5 - Tanks 101, 102 & 103	>
	Grangemouth FSA 5 - In-Scope Tank Modifications	>
	Grays FSA 4	>
	Grays FSA 5 - New Red Dockline	>

2.2.1 Actions outstanding from Belfast FSA 4

 David F  17 Nov     



Belfast FSA 4

 **15 - SIS Instrumentation and Documentation to reflect tag numbering of P & I Drawings also Instrument Tagging should be consistent with P & I Drawings**

Description

David Ransome created task. 5 Mar, 2015

David Ransome added to Belfast FSA 4. 5 Mar, 2015



 **David Ransome** 5 Mar, 2015 at 17:05 

David Ransome on Thursday Mar 05, 2015 01:30 PM:
added to NU271 - Belfast FSA 4

David Ransome changed the due date to May 31. 25 Mar, 2015

David Ransome assigned to darren.peck@nustarenergy.com. 25 Mar, 2015



David Ransome changed the due date to August 31. 3 Aug, 2015

 **David Ransome** 6 Oct, 2015 at 09:12 

Dependant on action 14

David Ransome changed the due date to September 22. 4 Aug

David Ransome changed the due date to November 17. 7 Nov

 **David Ransome** 7 Nov at 14:38 

P & I Design Ltd have visited site and a meeting with PILZ documents to be revised and update manual.



Belfast FSA 4

- ✓ **16 - All SIS documentation to be reviewed and ensure that it reflects P&I Drawings and installed system.**

Description

David Ransome created task. Mar 5, 2015



David Ransome Mar 5, 2015 at 5:05pm

David Ransome on Thursday Mar 05, 2015 01:31 PM:
added to NU271 - Belfast FSA 4

David Ransome assigned to darren.peck@nustarenergy.com. Mar 25, 2015
David Ransome changed the due date to May 31. Mar 25, 2015








David Ransome changed the due date to August 31. Aug 3, 2015




David Ransome Oct 6, 2015 at 9:13am
Dependant on Action 14 & 15



2.2.2 Actions outstanding from Belfast FSA 5 – Magnetrol Tanks 46 & 47

 David F  1 Nov, 2015     

Belfast FSA 5 - Tan...



 **7 - During installation it is essential that the calculated length of activation be checked and confirmed and that the cable length be set accordingly.**



Description

[3 more comments](#)



David Faulkner assigned the task. 20 May, 2015



David Ransome changed the due date to August 14. 3 Aug, 2015

 **David Ransome** 22 Sep, 2015 at 11:56 
Dave F, can you please update this action.


 **David Ransome** 6 Oct, 2015 at 09:17 
This was not confirmed during 2015 test, a new magnetrols are to be commissioned on 4, 5 & 12 so to be re-checked then.

David Ransome changed the due date to November 1. 6 Oct, 2015
David Ransome unassigned the task. 6 Oct, 2015
David Ransome assigned to David Faulkner. 6 Oct, 2015


 **David Ransome** 5 Apr at 09:06 
This has now been completed and all lengths checked


 **David Ransome completed this Task.** 5 Apr at 09:06 


Belfast FSA 5 - Tan...

 **15 - Testing documentation to be revised and additional documentation as required to be produced and issued for review.**

Description



 [NU271006_RPT_C - BF-SIS1 Shutdown Conditions SIF Proof Testing.pdf](#)

 [NU271002_SCH_A - BF-SIS1 SIF Testing Matrix.pdf](#)



 [NU271003_SCH_A - BF-SIS1 SIF Instrument Schedule.pdf](#)

3 more comments

David Ransome changed the due date to November 30. 6 Oct, 2015
David Ransome assigned to you. 6 Oct, 2015




 **Martin Morgan** 2 May at 16:06 
Dave - Can this task be closed ?




Martin Morgan changed the due date to May 5. 2 May
Martin Morgan marked today. 2 May




 **David Ransome** 3 May at 08:38 
In order to complete this task could you please append to ASANA the updated documents.

David Ransome unmarked today. 3 May
David Ransome unassigned from you. 3 May
David Ransome assigned to David Faulkner. 3 May



David Ransome changed the due date to November 18. 7 Nov



 **David Faulkner**  **attached** 9 Nov at 08:13 
[NU271006_RPT_C - BF-SIS1 Shutdown Conditions SIF Proof Testing.pdf](#)

 **David Faulkner**  **attached** 9 Nov at 08:14 
[NU271002_SCH_A - BF-SIS1 SIF Testing Matrix.pdf](#)

 **David Faulkner**  **attached** 9 Nov at 08:14 
[NU271003_SCH_A - BF-SIS1 SIF Instrument Schedule.pdf](#)

David Faulkner assigned to you. 9 Nov

 **David Ransome** 11 Nov at 13:52 
Testing documents revised, critical task independent checking added.

 **David Ransome completed this Task.** 11 Nov at 13:52 

2.2.3 Actions outstanding from Belfast FSA 5 – Magnetrol Tanks 4, 5 & 12

David R

18 Nov

Belfast FSA 5 - Tan...

✓

3 - Following completion of Action 1 Instrument Specifications to be As Built to reflect final cable insertion length.

Specification NU271004, 005 & 006 for Magnetrol level sensors

NU271013_CAL_A - IHLA-TK05 Tank 5 Magnetrol Calculation.pdf

NU271014_CAL_A - IHLA-TK12 Tank 12 Magnetrol Calculation.pdf

NU271012_CAL_A - IHLA-TK04 Tank 4 Magnetrol Calculation.pdf

NU271004_SPC_B - Tank 4 Level Switch (Magnetrol).pdf

NU271005_SPC_B - Tank 5 Level Switch (Magnetrol).pdf

NU271006_SPC_B - Tank 12 Level Switch (Magnetrol).pdf

David Ransome

19 May, 2015 at 11:57

Ensure cross check between Level of Concern document and specification is completed at commissioning.

David Ransome assigned to dan.ransome@nustarenergy.com

19 May, 2015

David Faulkner assigned to David Faulkner

20 Nov, 2015

David Faulkner changed the due date to November 30.

20 Nov, 2015

David Faulkner

attached

9 Nov at 08:20

NU271013_CAL_A - IHLA-TK05 Tank 5 Magnetrol Calculation.pdf

David Faulkner

attached

9 Nov at 08:20

NU271014_CAL_A - IHLA-TK12 Tank 12 Magnetrol Calculation.pdf

David Faulkner

attached

9 Nov at 08:20

NU271012_CAL_A - IHLA-TK04 Tank 4 Magnetrol Calculation.pdf

David Faulkner

attached

9 Nov at 08:20

NU271004_SPC_B - Tank 4 Level Switch (Magnetrol).pdf

David Faulkner

attached

9 Nov at 08:20

NU271005_SPC_B - Tank 5 Level Switch (Magnetrol).pdf

David Faulkner

attached

9 Nov at 08:20

NU271006_SPC_B - Tank 12 Level Switch (Magnetrol).pdf

David Faulkner assigned to you

9 Nov

David Ransome

11 Nov at 13:48

Calculations completed following as built cable final inspections, specifications reference appropriate calculation sheet, i.e. NU271005_SPC references NU271013_CAL for specific cable length.

✓

David Ransome completed this Task

11 Nov at 13:48

dp

darren.pec...

31 May, ...

Belfast FSA 5 - Tan...

4 - Level of Concerns document to be updated to reflect change of sensor.

See also Actions 1 & 3

Belfast LOC.pdf

Alarm Levels and setpoints, March 2016 - NW.xlsx

2 more comments

David Faulkner

attached

31 Mar at 07:55

Belfast LOC.pdf

David Faulkner

31 Mar at 08:15

Latest LOC attached, Tanks 46 and 47 also to update

David Ransome

4 Aug at 09:24

The date of this LoC does not reflect changes

dp

darren.peck@nustarenergy.com

attached

8 Aug at 13:18

Alarm Levels and setpoints, March 2016 - NW.xlsx

dp


darren.peck@nustarenergy.com

8 Aug at 13:19

Attached updated LOC document for Belfast, updated by Neil Woodley

David Ransome completed this Task.

7 Nov at 14:51



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David F



18 Nov



Belfast FSA 5 - Tan...



7 - Safety Plan to be produced for Belfast Terminal.

Description

David Ransome created task. 19 May, 2015



David Ransome 30 Mar at 09:57



Policy document and safety plan template approved by Safety Committee. P&I design now populating safety plans.

David Ransome changed the due date to April 29. 30 Mar

David Ransome assigned to David Faulkner. 7 Nov

David Ransome changed the due date to November 18. 7 Nov



David Ransome completed this Task. 14 Nov at 12:42




 David F  18 Nov      

Belfast FSA 5 - Tan...

 **8 - On completion of testing, completed testing documentation to be issued for review by the FSA.**

Description

 [NU055003_RPT_A_CC20151114 - Belfast Terminal BFSIS1 Magnetrol Upgrade Installation & SAT.pdf](#)

 [NU271004_DWG_C_CC20141114 - Tank 4 IHLA Loop Sheet.pdf](#)

 [NU271005_DWG_C_CC20141114 - Tank 5 IHLA Loop Sheet.pdf](#)

 [NU271006_DWG_C_CC20141114 - Tank 12 IHLA Loop Sheet.pdf](#)

 [Tank 4 Magnetrol Calculations.pdf](#)

 [Tank 4 Magnetrol Sketch.pdf](#)

 [Tank 5 Magnetrol Calculations.pdf](#)

 [Tank 5 Magnetrol Sketch.pdf](#)

 [Tank 12 Magnetrol Calculations.pdf](#)

 [Tank 12 Magnetrol Sketch.pdf](#)



 [NU055001_SCH_A_CC20151114 - Belfast Magnetrol Upgrade Project BFSIS1 Instrument Schedule.pdf](#)


 [NU055002_RPT_A_CC20151114 - Belfast Terminal BFSIS1 Magnetrol Upgrade SAT Documentation Verification.pdf](#)


 [NU055002_SCH_A_CC20151114 - Belfast Magnetrol Upgrade BFSIS1 Testing Matrix.pdf](#)


 **David Ransome** 11 Nov at 14:10 


The calculations and sketches need a document number assigning and should have revision, author and checker to provide an audit trail.


 **11 - Loop Drawings** 

 [NU271005_DWG_C_CC20141114 - Tank 5 IHLA Loop Sheet.pdf](#)


 [NU271006_DWG_C_CC20141114 - Tank 12 IHLA Loop Sheet.pdf](#)


 [NU271004_DWG_C_CC20141114 - Tank 4 IHLA Loop Sheet.pdf](#)

 [5470_434 - Tank 46 High Level Loop Sheet.dwg](#)


 [5470_435 - Tank 47 High Level Loop Sheet.dwg](#)


[View earlier activity](#)




David Ransome 20 May, 2015 at 10:34 
To be As Built following commissioning



David Faulkner assigned to David Faulkner. 20 Nov, 2015






David Faulkner 20 Nov, 2015 at 12:44 
Issue CAD files to DP


David Faulkner changed the due date to November 30. 20 Nov, 2015






David Faulkner  attached 31 Mar at 07:57 
[NU271005_DWG_C_CC20141114 - Tank 5 IHLA Loop Sheet.pdf](#)






David Faulkner  attached 31 Mar at 07:57 
[NU271006_DWG_C_CC20141114 - Tank 12 IHLA Loop Sheet.pdf](#)





David Faulkner  attached 31 Mar at 07:57 
[NU271004_DWG_C_CC20141114 - Tank 4 IHLA Loop Sheet.pdf](#)





David Faulkner  attached 31 Mar at 07:58 
[5470_434 - Tank 46 High Level Loop Sheet.dwg](#)



David Faulkner  attached 31 Mar at 07:58 
[5470_435 - Tank 47 High Level Loop Sheet.dwg](#)

David Faulkner marked today. 31 Mar




David Faulkner 31 Mar at 08:00 
Darren, please can you confirm the PLC slot numbers for tanks 4, 5 & 12. For reference 46, 47 are slots 2 & 3. Is there a Nozzle ID?


David Faulkner assigned to [darren.peck@nustarenergy.com](#). 31 Mar


David Faulkner changed the due date to April 5. 31 Mar


David Faulkner unmarked today. 31 Mar

David Faulkner assigned to David Faulkner. 31 Mar




David Faulkner completed this Task. 1 Apr at 14:44 








David Faulkner 1 Apr at 14:44 
Issued at Rev D pdf and CAD

2.2.4 Actions outstanding from Clydebank FSA 5 – Magnetrol Tanks 7 & 9


The following outstanding actions were reviewed and updated at the the October 2015 Safety Committee Meeting.

**6 - PILZ to update and issue for review their software design and testing documentation to reflect the changes.**



[100532.03_20150420_00_CSAT.pdf](#)
[100532.03_20150420_01_CSSC.pdf](#)
[100532.03_20150428_05_CSVS.pdf](#)
[100532.03_20150120_01_CSCC.pdf](#)
[100532.03_20150315_02_CSSR.pdf](#)



David Ransome created task. 18 Mar, 2015
David Ransome added to Clydebank FSA 5 – Tank 7 & 9 Magnetrols. 18 Mar, 2015
David Ransome assigned to you. 18 Mar, 2015
David Ransome changed the due date to March 25. 18 Mar, 2015



David Ransome assigned to darren.peck@nustarenergy.com. 25 Mar, 2015
David Ransome changed the due date to April 10. 25 Mar, 2015



**David Ransome** 6 Oct, 2015 at 09:43
Safety Committee meeting, It was confirmed that this is complete. However it was further agreed to combine all documentation into a three manual system and put on-line.



David Ransome assigned to you. 6 Oct, 2015
David Ransome changed the due date to November 30. 6 Oct, 2015


**David Faulkner**  attached 7 Oct, 2015 at 07:23
[100532.03_20150420_00_CSAT.pdf](#)


**David Faulkner**  attached 7 Oct, 2015 at 07:23
[100532.03_20150420_01_CSSC.pdf](#)

**David Faulkner**  attached 7 Oct, 2015 at 07:23
[100532.03_20150428_05_CSVS.pdf](#)

**David Faulkner**  attached 7 Oct, 2015 at 07:23
[100532.03_20150120_01_CSCC.pdf](#)

**David Faulkner**  attached 7 Oct, 2015 at 07:23
[100532.03_20150315_02_CSSR.pdf](#)


**David Ransome** 15 Aug at 09:21
Action Closed

**David Ransome completed this Task.** 15 Aug at 09:21

✓ **7- All testing documentation requires updating to reflect the modification and further recommendations from the HSE detailed within SPC/Technical/General/48 - Proof Testing of Safety Instrumented Systems in the Onshore Chemical / Specialist Industry.**

David Ransome assigned to you. 6 Oct, 2015

David Ransome changed the due date to November 30. 6 Oct, 2015

 **David Ransome** 6 Oct, 2015 at 09:46
New testing documentation completed for FSA to review

 **David Faulkner**  **attached** 7 Oct, 2015 at 07:21
[NU211101_RPT_B - CL-SIS1 Operation, Maintenance and Modification Lifecycle Plan.pdf](#)

 **David Faulkner**  **attached** 7 Oct, 2015 at 07:21
[NU211103_RPT_C - CL-SIS1 Shutdown Conditions SIF Proof Testing.pdf](#)

 **David Faulkner**  **attached** 7 Oct, 2015 at 07:22
[NU211102_RPT_C - CL-SIS1 Documentation Verification.pdf](#)

 **David Faulkner**  **attached** 7 Oct, 2015 at 07:22
[NU211108_RPT_A - CL-SIS1 RAMS.pdf](#)

 **David Faulkner**  **attached** 7 Oct, 2015 at 07:22
[NU211102_SCH_A - CL-SIS1 SIF Testing Matrix.pdf](#)

 **David Faulkner**  **attached** 7 Oct, 2015 at 07:22
[NU211103_SCH_A - CL-SIS1 SIF Instrument Schedule.pdf](#)

 **David Faulkner**  **attached** 7 Oct, 2015 at 07:22
[NU211104_SCH_A - CL-SIS1 Testing Lifecycle Matrix.pdf](#)

 **David Faulkner**  **attached** 7 Oct, 2015 at 07:22
[NU211101_SCH_A - CL-SIS1 Overview Trip Matrix.pdf](#)

 **David Faulkner**  **attached** 7 Oct, 2015 at 07:22
[NU211003_DWG_A - CL-SIS1 Schematic Overview.pdf](#)








 **David Ransome** 16 Aug at 09:54
Action Completed

✓ **David Ransome completed this Task.** 16 Aug at 09:54




2.2.5 Actions outstanding from Eastham FSA 4

The following outstanding actions were reviewed and updated at the the October 2015 Safety Committee Meeting.



 **simon.hunter...**  **18 Nov**     

Eastham FSA 4

 **14 - SIS Instrumentation and Documentation to reflect tag numbering of P & I Drawings also Instrument Tagging should be consistent with P & I Drawings**



Description



[View earlier activity](#)



 **David Ransome** 5 Mar, 2015 at 16:57 
David Ransome on Thursday Mar 05, 2015 02:15 PM:
added to NU231 - Eastham FSA 4

David Ransome assigned to you. 18 Mar, 2015
David Ransome changed the due date to March 25. 18 Mar, 2015

David Ransome assigned to darren.peck@nustarenergy.com. 25 Mar, 2015
David Ransome changed the due date to May 29. 25 Mar, 2015

 **David Ransome** 25 Mar, 2015 at 11:34 
NuStar to provide tags for SIS components for P&I to fit at next proof test

 **David Ransome** 25 Mar, 2015 at 11:35 
Once tags received P&I Design to fit during July proof test

 **David Ransome** 6 Oct, 2015 at 09:50 
NuStar to complete tagging of SIS instrumentation

David Ransome assigned to simon.hunter@nustarenergy.com. 6 Oct, 2015
David Ransome changed the due date to November 30. 6 Oct, 2015

David Ransome changed the due date to November 18. 7 Nov



David R



24 Nov, 2017



Eastham FSA 4



15 - All SIS documentation to be reviewed and ensure that it reflects P&I Drawings and installed system.

Description

David Ransome created task. 5 Mar, 2015



David Ransome 5 Mar, 2015 at 16:57



David Ransome on Thursday Mar 05, 2015 02:15 PM:
added to NU231 - Eastham FSA 4







David Ransome assigned to you. 18 Mar, 2015

David Ransome changed the due date to March 25. 18 Mar, 2015


David Ransome changed the due date to November 24. 7 Nov



2.2.6 Actions outstanding from Eastham FSA 5 – Shell Modifications


 David F  Feb 23    

Eastham FSA 5 Shell M.


 **4 - SRS to be re-written to reflect changes**

Description


[View earlier activity](#)


 **David Ransome** · Aug 3, 2015 at 1:46pm
Darren, can you please check with Simon as to the position of the information required from DSR

David Ransome assigned to David Faulkner. · Oct 6, 2015
David Ransome changed the due date to October 30. · Oct 6, 2015

 **David Ransome** · Oct 6, 2015 at 10:04am
The SRS was discussed at the October Safety Committee. The combined SRS still needs to detail the operational statements to allow PILZ to write the software.
P&I Design to work with Simon Hunter to ensure a document is produced which reflects both the system requirements and the standard.








David Ransome changed the due date to February 23. · Feb 16

 **David Ransome** · Feb 16 at 11:25am
I have an FSA 5 review on 25th February. I have checked and this action has not been progressed, is it possible to have it updated before the FSA meeting.


 **darren.peck@nustarenergy.com** · Feb 16 at 11:32am
Dave
Sorry, is this a request that you are asking of me, or are you requesting from Simon??
Sorry??
Regards
Darren
Darren Peck
NuStar Terminals Ltd
EC&I Manager
Mobile: 07831 130008
Telephone: 01953 453338



2.2.7 Actions outstanding from Eastham FSA 5 – Chloroform



 **simon.hunt...**  17 Nov, ...     

Eastham FSA 5 - C...

 **1 - Calculation for safe height at SG 1.47**








Storage tank damage or rupture as a result of high SG product in non pressure rated tanks. Tank height is 18.2 metres and the maximum safe fill level at SG 1.47 is 10.4 metres. Calculation is based upon SG 1 and tank space at 1700 cubes.

David Ransome created task. 25 Feb
David Ransome added to Eastham FSA 5 - Chloroform. 25 Feb


 **David Ransome** 25 Feb at 09:37 
NuStar to confirm with a documented calculation

David Ransome assigned to simon.hunter@nustarenergy.com. 25 Feb
David Ransome changed the due date to March 4. 25 Feb

David Ransome changed the due date to November 17. 7 Nov

 **simon.hunt...**  17 Nov, ...     

Eastham FSA 5 - C...

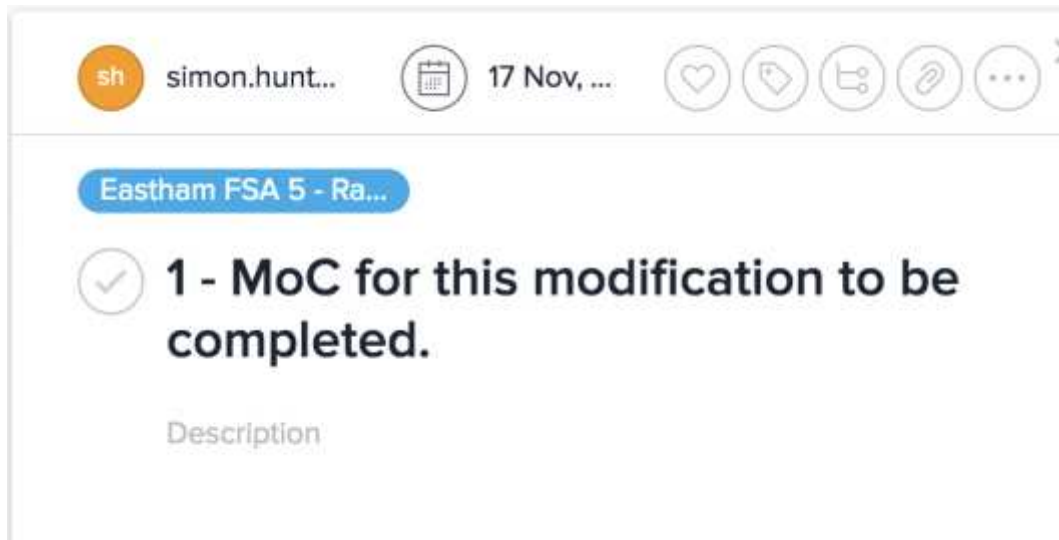
 **2 - MoC for this modification to be completed.**

Description

David Ransome created task. 25 Feb
David Ransome added to Eastham FSA 5 - Chloroform. 25 Feb
David Ransome assigned to simon.hunter@nustarenergy.com. 25 Feb
David Ransome changed the due date to March 4. 25 Feb

David Ransome changed the due date to November 17. 7 Nov

2.2.8 Actions outstanding from Eastham FSA 5 – Radar Ranging



2.3 HSE Visits

All actions are now complete from the HSE Eastham visit.

3 SAFETY COMMITTEE MEETINGS

The object of this committee is for NuStar Energy Ltd to organise and control the Safety Instrumented Systems throughout their UK facility to ensure satisfactory operation, functional safety and compliance with the international standard BS EN 61511.

Date of Meeting	06/04/2016	
Location	NuStar Eastham Terminal	
Present		
Name	Company & Position	Competence
Adrian Senior	NuStar Eastham – Terminal Manager	Over 25 years’ experience in the industry having worked in all capacities from weighbridge clerk to operations supervisor and operations manager through to his current position of Terminal Manager.
Simon Hunter	NuStar Eastham – Terminal Engineering Manager	Mechanical Engineering BEng (Hons) with over 15 years’ experience as an Engineer on Oil Storage Terminals. Five years at NuStar managing the Engineering Maintenance, Inspection and Testing.
Darren Peck	NuStar UK - EC&I Engineering Manager	Over 20 years’ experience in the petrochemical process industry ranging from design through to installation and commissioning.
Yvette Davis	NuStar UK - Senior Manager for HSE	Over 17 years’ experience in managing HSE in TT COMAH sites, 8 years’ experience in Fuel Storage Terminals, managing both Process and occupational safety aspects.
David Ransome Chair	P & I Design Ltd – Consultant	Chartered Engineer and a Fellow of the Institute of Measurement and Control with over 40 years’ experience in the Chemical and Process Industry, specialising in High Integrity Protection Systems and Safety Instrumented Systems. Registered Functional Safety Engineer.
David Faulkner	P & I Design Ltd – Engineer	Involved in the maintenance and commissioning of Process Plants, Storage Facilities and Safety Instrumented Systems for over 15 years. Experience includes on-shore systems, including high integrity protection systems. A qualified Functional Safety Specialist.
Paul Price	NuStar Eastham Site Engineer	Mechanical Engineering BEng (Hons) with over 8 years’ experience as a mechanical Engineer. Two years experience on Oil Storage Terminals.



3.1 Minutes of Previous Meeting

The minutes of the previous meeting NU00113_MIN Revision B were reviewed, some actions remain incomplete. See Section 2 of these minutes.

Actions within an FSA are to be controlled within the relevant FSA. Outstanding actions from FSA's are detailed in Section 2 of these minutes.



4 MANAGEMENT OF FUNCTIONAL SAFETY

4.1 SIS Performance including any maintenance, failures, activations and false alarms.

See ASANA for E/550 reports.

4.1.1 Belfast

Belfast have experienced a significant number of failures of E&H Liquiphant switches and Nivotesters. The Safety Committee asked E&H to attend the meeting to try to discover why these failures are occurring.

Belfast:

UKBF001 - Tank 29 - 07.05.13 - Liquiphant	SD	Comp Fail
UKBF002 - Tank 27 - 19.08.13 - Liquiphant	SD	Comp Fail
UKBF003 - Tank 34 - 20.08.13 - Nivotester	SU	Comp Fail
UKBF004 - Tank 5 - 01.05.14 - Radar		Mainten...
UKBF005 - Tank 21 - 18.05.15 - Liquiphant	SD	Comp Fail
UKBF006 - Tank 30 - 01.08.15 - Liquiphant	SD	Comp Fail
UKBF007 - Tank 6 - 12.08.15	SD	Operations
UKBF008 - Tank 50 - 15.08.15 - Nivotester	SD	Spurious
UKBF009 - Tank 50 - 18.08.15 - Liquiphant	SD	Comp Fail
UKBF010 - Tank 18 - 15.10.15 - Liquiphant	SD	Comp Fail
UKBF011 - Tank 19 - 10.11.15 - Nivotester	SD	Comp Fail
UKBF012 - Tank 48 - 21.12.15 - Liquiphant	SD	Comp Fail
UKBF013 - Tank 14 - 04.01.16 - Liquiphant	SD	Comp Fail
UKBF014 - IHLA SIS - PSU	SD	Comp Fail

Alan Hudson from E&H attended the meeting and discussed improvements that they have implemented into the investigation of equipment failure sent back to them. He also stated that they have a preference for return of the Nivotester as well as Liquiphant for full investigation.

It was also agreed that Stainless Steel housings should be specified as opposed to aluminium. E&H offered to provide replacements at a discounted price.

On aluminium devices it is recommended that the seal be changed yearly either by E&H by adding to their service contract, or at the SIS check or at DSEAR checks.

ACTION: 2016 – 01: E&H Liquiphant's at Belfast - Preventative Maintenance



4.1.2 Clydebank

Clydebank:		
	UKCL006 - Tank 7 - 27.03.14	SD Spurious
	UKCL007 - Tank 2 - 29.04.14	SD Comp Fail
	UKCL008 - Tank 9 - 05.05.14	SD Spurious
	UKCL009 - Tank 9 - 22.05.14	SD Spurious
	UKCL010 - Tank 9 - 20.06.14	SD Spurious
	UKCL011 - Tank 9 - 20.06.14	SD Spurious
	UKCL012 - Tank 7 - 03.09.14	SD Spurious
	UKCL013 - Tank 9 - 24.11.14	SD Spurious
	UKCL014 - Tank 9 - 16.05.15	DD Comp Fail
	UKCL015 - Tank 2 - 28.04.14	DD Comp Fail
	UKCL016 - Tank 2 - 06.05.15	DD Comp Fail
	UKCL017 - Tank 13 - 26.05.15	SD Comp Fail
	UKCL018 - Tank 1 - 11.06.15	SD Operations
	UKCL019 - Tank 1 - 23.06.15	SD Operations
	UKCL020 - Tank 2 - 02.10.15 - Valve Fault	DD Demand
	UKCL021 - Tank 7 - 23.11.15 - Maintenance Activity caused fault	SD Maintena...

Faults and Activtions > Clydebank

UKCL021 - Tank 7 - 23.11.15 - Maintenance Activity caused fault

Contract electrician working on IHLA caused gauge to move resulting in high level reading.



SD

Maintenance



UKCL021 - E550, Tank 07, Clydebank.docx

David Ransome created task. Yesterday

David Ransome added to Faults and Activtions. Yesterday



David Ransome attached Yesterday at 10:28am

UKCL021 - E550, Tank 07, Clydebank.docx

David Ransome added to SD. Yesterday

David Ransome added to Maintenance. Yesterday



David Ransome completed this Task. Today at 8:58am

ACTION 2016 – 05: Clydebank Tank 2 - 02.10.15 - Valve Fault E/550 UKCL020



P & I Design Ltd
2 Reed Street, Thornaby, UK, TS17 7AF
Tel: + 44 (0)1642 617444
Fax: + 44 (0)1642 616447
www.pidesign.co.uk

DOCUMENT NO: NU001114_MIN
ISSUE: B DATE: 22.11.16
PAGE 26 OF 52

4.1.3 Eastham

Eastham:

✓	UKEH004 - TK71 - 28.03.14	SD	Spurious
✓	UKEH005 - TK83 - 09.06.14	SD	Spurious
✓	UKEH006 DL02 - 15.10.14	SD	Comp Fail
✓	UKEH007 DL31 (Not SIS) - 20.02.15	SD	Comp Fail
✓	UKEH008 PILZ Fail - 02.03.15	SD	Comp Fail
✓	UKEH009 - Tank 18 - 20.05.15	SD	Operations
✓	UKEH011 - Tank 60 - Radar - Spurious Alarm in empty tank - 26.10.15	SD	Spurious
✓	UKEH012 - DL02-E5V - Dockline valve closed but no indication was received as coms failure 30.10.15	DD	Comp Fail
✓	UKEH013 - Tank 247 - IHLA seems to be set too low in the tank? - 08.02.16	SD	Demand

Faults and Activtions > Eastham

✓ UKEH011 - Tank 60 - Radar - Spurious Alarm in empty tank - 26.10.15

Alarm sounded the tank was empty and the system was muted, the PILZ screen is showing instrument fault.



SD

Spurious



UKEH011 - E550 - Eastham Tank 60 1-2015.docx

David Ransome created task. Yesterday
David Ransome added to Faults and Activtions. Yesterday
David Ransome changed the due date to April 28. Yesterday
David Ransome assigned to darren.peck@nustarenergy.com. Yesterday



David Ransome Yesterday at 9:08am

It was noted the E/550 form was not fully completed detailed the action taken to re-instate the SIF.



David Ransome attached Yesterday at 9:09am

UKEH011 - E550 - Eastham Tank 60 1-2015.docx

David Ransome added to SD. Yesterday
David Ransome added to Spurious. Yesterday
David Ransome unassigned from darren.peck@nustarenergy.com. Yesterday
David Ransome removed the due date. Yesterday



David Ransome completed this Task. Today at 8:58am



Faults and Activtions > Eastham v

✓ **UKEH012 - DL02-ESV - Dockline valve closed but no indication was received as coms failure 30.10.15**

The PLC stalled and comms where lost between the control room and field



Comp Fail



DD



UKEH012 - PLC Stalled-Froze E1002-27112015 - 2-2015.docx

[View earlier activity](#)



David Ransome Yesterday at 9:13am



PLC stalled/froze and DL02 ESV closed without indication on the PILZ panel, ThePILZ panel showed the ESV on DL02 as open all the way through the failure though the PLC tick stopped moving. AFAIK know alarm indicating the failure of the PLC was received.



David Ransome Yesterday at 9:14am



Action Taken:

Ship stopped and the system made safe. Darren Peck contacted and information given on rebooting the PLC



David Ransome Yesterday at 9:14am



Details of Repair:

PLC rebooted and comms restarted



David Ransome attached Yesterday at 9:16am



[UKEH012 - PLC Stalled-Froze E1002-27112015 - 2-2015.docx](#)



David Ransome Yesterday at 1:18pm



Safety Committee review:

It is not apparent why the valve closed and if it was due to a PLC fault. The system was re-booted and no further fault found.

It is unclear if the valve closed thus a SD failure or did not close and ops took action DD failure. It has been defined as a DD failure.

David Ransome added to DD. Yesterday

David Ransome added to Comp Fail. Yesterday



✓ David Ransome completed this Task. Today at 8:58am



Faults and Activtions > Eastham >

✓ UKEH013 - Tank 247 - IHLA seems to be set too low in the tank? - 08.02.16

SIF operated early at 11.010m as opposed 11.200m



SD >

Demand >

[View earlier activity](#)



David Ransome Yesterday at 9:23am



Action Taken:

Tank check dipped to verify the fault, the density was also checked and found to be lower than anticipated



David Ransome Yesterday at 9:24am



KPI - Report created - E2001-08022016



David Ransome Yesterday at 9:28am



Safety Committee Meeting

The E/550 form has not been fully completed to determine if further checks are required.

It is very unlikely that the lower SG would have an affect as the detection method is point contact so it is not possible for it to operate 190mm before the product comes into contact with the probe.



David Ransome Yesterday at 9:36am



ACTION 2016-03 raised - A full check to be performed on the length of the probe to ensure that it is installed to the correct length.

David Ransome moved into Eastham (Faults and Activtions). Yesterday

David Ransome added to SD. Yesterday

David Ransome added to Demand. Yesterday



David Ransome completed this Task. Today at 8:58am



ACTION 2016 – 03: Eastham Tank 247 Liquiphant probe length to be re-checked



4.1.4 Grangemouth

Grangemouth:

✓ UKGR002 - TK49 - 10.01.14	Demand Operations
✓ UKGM005 - TK54 - 10.07.14	SD Spurious
✓ UKGM006 Tank 43 - 20.01.15	SD Systemet...
✓ UKGM007 - Tank 81 - 08.06.15	SD Maintena...
✓ UKGM008 - ESV - 12.05.15	SD Operations
✓ UKGM008 (Duplicated No) - Tank 87 - 20.10.15	SD Comp Fail
✓ UKGM009 - Tank 89 - 15.02.16	SD Spurious
✓ UKGM010 - Derv Receipt Line - 20.02.16	SD Operations
✓ UKGM011 - PIDA Import Line	SD Operations
✓ UKGM012 - MCC01	SD Comp Fail
✓ UKGM013 - Tank 88 - 31.03.16	SD Spurious
✓ UKGM014 - Tank 53 - 31.03.16	SD Spurious

Faults and Activtions > Grangemouth v



UKGM008 (Duplicated No) - Tank 87 - 20.10.15

Description/Cause of Spurious Trip:

When filling tank 087at a reduced rate the IHLA was activated twice when the product was between 500mm and 1000m.



Comp Fail SD



UKGM008 - E550, Tank 87.docx

David Ransome created task. Yesterday



David Ransome attached Yesterday at 10:32am
UKGM008 - E550, Tank 87.docx



David Ransome Yesterday at 10:34am
Action Taken:
Tank isolated and product level confirmed, TORA completed and the IHLA was overridden until the product was at 2000mm.
The issue is believed to be that the radar gauge is unable to read a level when the product is below the receipt line into the tank, i.e. not a smooth surface



David Ransome completed this Task. Today at 8:58am



Faults and Activtions > Grangemouth v

UKGM009 - Tank 89 - 15.02.16

During an unrelated transfer the IHLA on tank 089 activated, on further investigation the product level was found to be below the NFL.



SD x

Spurious x



 UKGM009 - E550 - Tank 89, SIS Operation-Failure Report.docx

2 more comments



David Ransome Yesterday at 10:38am



Liqifants already on order for this tank.



David Ransome Yesterday at 11:06am



Safety Committee April 2016

ACTION 06 Raised as no mention of this modification was raised at the meeting. Is it part of the SIS modification as proposed for the in-scope tanks.



David Ransome Today at 9:26am



Confirmed that modification of sensor will be part of FSA 5 to be held on 13.04.16.



David Ransome completed this Task. Today at 9:26am



Faults and Activtions > Grangemouth ▾



UKGM010 - Derv Receipt Line - `20.02.16

Description/Cause of Activation:

ESV 3 closed due to low nitrogen pressure.



SD

Operations



UKGM010 - E550 SIS Operation-Failure Report.docx

David Ransome created task. Yesterday

David Ransome added to Faults and Activtions. Yesterday



David Ransome attached Yesterday at 10:44am

UKGM010 - E550 SIS Operation-Failure Report.docx



David Ransome Yesterday at 10:45am

Action Taken:

A line was being blown, this was stopped and the ESV was reinstated into the correct position.



David Ransome completed this Task. Today at 8:58am



Faults and Activtions > Grangemouth ▾



UKGM011 - PIDA Import Line

Description/Cause of Spurious Trip:
PIDA ESV closed during a transfer



SD

Operations



UKGM011.pdf

David Ransome created task. Yesterday

David Ransome added to Faults and Activtions. Yesterday



David Ransome  **attached** Yesterday at 10:50am
[UKGM011.pdf](#)



David Ransome Yesterday at 10:54am

Action Taken:

Transfer stopped and closure investigated, lack of nitrogen pressure was the issue. Long term-The line blowing procedure has been changed to prevent this happening again



David Ransome completed this Task. Today at 8:58am



Faults and Activtions > Grangemouth ▾

UKGM012 - MCC01

PLC Comms Failure



Comp Fail ▾

SD ▾



[UKGM012 - E550, MCC01 Failure.pdf](#)

David Ransome created task. Yesterday

David Ransome added to Faults and Activtions. Yesterday



David Ransome  **attached** Yesterday at 10:59am

[UKGM012 - E550, MCC01 Failure.pdf](#)



David Ransome Yesterday at 11:01am

Equipment Failed Safely:

SCADA system in CR reported a comms failure. PILZ PLC showed a fault



David Ransome Yesterday at 11:01am

Action Taken

PLC reset OK



David Ransome completed this Task. Today at 8:58am



Faults and Activtions > Grangemouth ▾



UKGM013 - Tank 88 - 31.03.16

Description/Cause of Spurious Trip: Possible wind acting on surface of product



SD x

Spurious x



UKGM013.pdf

David Ransome created task. Yesterday

David Ransome added to Faults and Activtions. Yesterday



David Ransome attached Yesterday at 11:03am
[UKGM013.pdf](#)



David Ransome Yesterday at 11:06am
Action Taken:
Gauge to be replaced with liquiphant



David Ransome Yesterday at 11:09am
Safety Committee April 2016
ACTION 06 Raised as no mention of this modification was raised at the meeting. Is it part of the SIS modification as proposed for the in-scope tanks.



David Ransome Today at 9:31am
Confirmed that modification of sensor will be part of FSA 5 to be held on 13.04.16



David Ransome completed this Task. Today at 9:31am



Faults and Activtions > Grangemouth ▾



UKGM014 - Tank 53 - 31.03.16

Description/Cause of Spurious Trip:

Tank is out of service, disconnected and empty – cause unknown



SD ▾

Spurious ▾



UMGM014 - E550 Tk53.docx

David Ransome created task. Yesterday

David Ransome added to Faults and Activtions. Yesterday



David Ransome attached Yesterday at 11:07am

UMGM014 - E550 Tk53.docx



David Ransome Yesterday at 11:09am

Action Taken:

Gauge to be taken out of service after FSA review.



David Ransome Yesterday at 11:12am

Safety Committee April 2016

ACTION 06 Raised as no mention of this modification was raised at the meeting. Is it part of the SIS modification as proposed for the in-scope tanks.



David Ransome Today at 9:33am

Confirmed that modification of sensor will be part of FSA 5 to be held on 13.04.16



David Ransome completed this Task. Today at 9:33am



ACTION 2016 – 06: Grangemouth Tanks 88 & 89 change from Radar to Liquiphant See UKGM009 Faults and Activations



4.1.5 Grays

Grays:

 UKGR003 Tank 1B - 021014	 
 UKGR004 Tank 1B - 031014	 

It was noted that Grays have not submitted any reports of failures using the E/550 form since October 2010.

ACTION 2016 – 02: Check with Grays that they have not had any spurious trips, failures, maintenance issues or activations.

ACTION 2016 – 04: Other than Belfast, Terminals are not fully completing the E/550 Form



4.2 Lifecycle Documentation

The on-line documentation system controlled by P&I Design Ltd is now fully operational and is being populated with all NuStar Energy documentation generated by P&I Design Ltd. The Safety Committee discussed if all SIS documentation should be available through this interface.

The proposed format will have, for each terminal, documentation as follows:

LOPA

Management of Functional Safety Manual including:

- Policy & Lifecycle Activities Document NU001002_RPT
- SIS Safety Plan document
- Functional Safety Assessments

SIS Design Manual including:

- Safety Requirement Specification
- SIS Design
- Specifications
- Drawings & Schedules
- Test Procedures

SIS Testing Manual including:

- Factory Acceptance tests
- Site Acceptance Tests
- Proof Testing
- Maintenance Activities



4.3 Functional Safety Management

The Safety Committee reviewed, at the March meeting, the Policy & Lifecycle Activities document and Safety Plan.

Discussion took place regarding the role of the Functional Safety Manager. NuStar Energy members of the Safety Committee to review the responsibilities of the FSM. It was felt that the Safety Committee should take this position as opposed to Terminal Managers. Following review the Policy & Lifecycle document to be revised and re-issued.

Dave Ransome pointed out the requirement within Edition 2 of IEC 61511 regarding Clause 5.2.2 Organisation and Resources:

5.2.2 Organization and resources

5.2.2.1 Persons, departments, organizations or other units which are responsible for carrying out and reviewing each of the SIS safety life-cycle phases shall be identified and be informed of the responsibilities assigned to them.

5.2.2.2 Persons, departments or organizations involved in SIS safety life-cycle activities shall be competent to carry out the activities for which they are accountable.

Discussion took place in how NuStar will comply with this clause and the following was agreed to keep the FSM as the Safety Committee and everybody at the meeting was made aware of their responsibilities.



4.4 SIS Testing, planning, results, data collection and analysis.

Testing Schedule:

Terminal	Last Test Done	Scheduled Next Test	Actual Test Date
Belfast	27 th April 2015	End April 2016	
Clydebank	4 th – 5 th November 2015 Magnetrol not internally inspected due to inclement weather. Tagging DL04 valve label missing.	November 2016	
Eastham	1 st July 2015	July 2016	
Grangemouth	10 th February 2016 Sensor heights confirmed. Labels missing.	February 2017	
Grays	22 nd – 23 rd April 2015	April 2016	

4.5 Training requirements and roles and responsibilities of employees and contractors.

A training course was conducted on 19th November at Grays Terminal with the following employees attending:

- Martin Childs 19-11-15
- Neil Stennett 19-11-15
- Nick Cook 19-11-15
- Paul Smith 19-11-15
- Paul White 19-11-15
- Ricky Archer 19-11-15
- William Hopkins 19-11-15
- Zak Underdown 19-11-15

Future training requirements: Eastham require a training for new operators.

ACTION 2016-07: Date to be agreed for Eastham training course.

4.6 Review of organisation and resources.

There have been no changes to the organisation and resources and NuStar Energy feel that management of the systems is satisfactory.



4.7 Outcome of and review of Functional Safety Assessments and Outstanding Action status.

See Section 2 for actions from current functional Safety Assessments.

Dave Ransome stated that an extra effort was needed to complete the open FSA's as some have been open for an extended time period.

He also advised the Committee of the intent of IEC 61511 Edition 2 with respect to performing FSA's as defined in Clauses 5.2.6.1.4, 5.2.6.1.9 and 17.2.6 and also the requirement of "shall". NuStar Energy have, since the formation of the Safety Committee, endeavoured to conduct FSA 5 for all modification. It is noted in Edition 2, that the FSA should be complete before the modification. The Safety Committee felt that if the FSA is conducted to reflect the fully installed and commissioned modification, that this was not possible. Although, NuStar Energy feel that it is essential to start the FSA prior to the modification in respect to the definition of the modification, responsibilities of those involved in the modification together with impact assessments and determination of the lifecycle documentation requirements and planning.

5.2.6.1.4 A FSA team shall review the work carried out on all phases of the safety life cycle prior to the stage covered by the assessment that have not been already covered by previous FSAs. If previous FSAs have been carried out then the FSA team shall consider the conclusions and recommendations of the previous assessments. The stages in the SIS safety life-cycle at which the FSA activities are to be carried out shall be identified during the safety planning.

5.2.6.1.9 In cases where a FSA is carried out on a modification the assessment shall consider the impact analysis carried out on the proposed modification and confirm that the modification work performed is in compliance with the requirements of IEC 61511.

17.2.6 Modification activity shall not begin until a FSA is completed in accordance with 5.2.6.1.9 and after proper authorisation.

4.8 Review of any management of change or modifications to the systems.

The issue of Management of Change for a modification has been clarified in IEC 61511 Edition 2, as detailed in Clause 5.2.6.2.4:

5.2.6.2.4 Management of change procedures shall be in place to initiate, document, review, implement and approve changes to the SIS other than replacement in kind (i.e., like for like, an exact duplicate of an element or an approved substitution that does not require modification to the SIS as installed).

Modification at Eastham for the Chloroform project together with an SIS enhancement in the rangeability of the measurement of the Radar Gauges are already under way and FSA 5's have commenced.

A major modification to the SIS at Grangemouth has been proposed and an FSA 5 is to commence on 13th April 2016.



4.9 Review of any HSE or other agency visits.

No other HSE visits have taken place.

4.10 Review of any changes in the standard or competent authority guidelines.

The revision to BS EN 61511 2015 is expected to be released later in the year. Currently IEC 61511 has been voted on, adopted and is currently being published. The British Standards Committee will now vote to adopt IEC as a BS EN.

The NuStar Energy Safety Committee will now work to the guidelines of IEC 61511 Edition 2.

Dave Ransome gave a presentation as to the main changes between Edition 2 & 1. Some of the main points have been included within the minutes of the meeting in the relevant sections.

4.11 Review of competency requirements.

NuStar Energy feel that the competency of those working on the SIS systems is currently acceptable and will be reviewed in line with any additional guidelines or changes in the standard.

4.12 Review of independent Instrumented Safety Functions.

NuStar Energy have maintenance agreements in place with manufactures/suppliers of their BPCS.



4.13 Cyber Security.

Cyber security is a major threat and one that is capable of being induced into process control systems, not just through the internet but also through connecting infected devices to programming ports on PLC and SCADA systems.

There are many working groups producing guidance for the process industry, including an open document from the HSE.

IEC 61511 Edition 2 now includes a requirement for a security risk assessment as defined in Clause 8.2.4:

8.2.4 A security risk assessment shall be carried out to identify the security vulnerabilities of the SIS. It shall result in:

- a description of the devices covered by this risk assessment (e.g., SIS, BPCS or any other device connected to the SIS);
- a description of identified threats that could exploit vulnerabilities and result in security events (including intentional attacks on the hardware, application programs and related software, as well as unintended events resulting from human error);
- a description of the potential consequences resulting from the security events and the likelihood of these events occurring;
- consideration of various phases such as design, implementation, commissioning, operation, and maintenance;
- the determination of requirements for additional risk reduction;
- a description of, or references to information on, the measures taken to reduce or remove the threats.

ACTION:2016 – 08: A working group of the Safety Committee to produce a risk assessment for Cyber Security with respect to the SIS.



5 ACTIONS ARISING FROM THIS MEETING

dp darren.peck...

30 Nov

NuStar Safety Com...

5th April 2016

✓

2016 - 01 - E&H Liquiphant's at Belfast - Preventative Maintenance

Following several failures from Liquiphants lately, due to corrosion and possible water ingress. E&H attended the Safety Committee meeting

✓

FW Nustar Belfast - contract update.msg

2 more comments

dp

David Ransome

7 Apr at 09:39

On aluminum devices it is recommended that the seal be changed yearly either by E&H by adding to their service contract, or at the SIS check or at DSEAR checks.

dp

David Ransome

7 Apr at 09:40

NuStar to consider SS replacement and decide how to implement seal replacement on aluminum units

dp

darren.peck@nustarenergy.com

attached

5 Aug at 09:12

FW Nustar Belfast - contract update.msg

dp

darren.peck@nustarenergy.com

5 Aug at 09:13

See the attached NuStar contract update from E&H

I have recommended to Paul that he takes the offer up with E&H on preventative maintenance.

 **darren.peck...**  **29 Apr**     

NuStar Safety Com... 5th April 2016 ▾

✓ **2016 - 02 - Check with Grays that they have not had any spurious trips, failures, maintenance issues or activations.**

It was noted that Grays have not submitted any reports of failures using the E/550 forms since October 2010.

David Ransome created task. 8 Apr



David Ransome 8 Apr at 09:38
Darren Peck to check with Terminal Manager



darren.peck@nustarenergy.com 8 Apr at 13:04
I Can confirm since June 22nd 2015 to the best of my knowledge Grays has not had any Spurious trips, failures, maintenance issues or activations of our IHLA SIS



Kind Regards

Nick Cook | Operations Manager
NuStar Terminals Ltd
Askews Farm Lane |
Off London Road | Grays | Essex | RM17 5YZ
01375896109
Nick.Cook@nustarenergy.com | <http://www.nustarenergy.com>



dp

darren.peck...

30 Nov

NuStar Safety Com...

5th April 2016

✓

2016 - 03 - Eastham Tank 247

Liquiphant probe length to be re-checked

Following E/550 report UKEH013 - 08.02.16 following an early IHLA activation at 11.010m as opposed to 11.200m

View earlier activity

David Ransome

7 Apr at 09:35

See fault and activations section

David Ransome

7 Apr at 09:36

A full check to be performed on the length of the probe to ensure that it is installed to the correct length.

David Faulkner

7 Apr at 13:21

Tank 247 is on site 2. Not part of EH-SIS1 as tested by P&I

David Ransome assigned to darren.peck@nustarenergy.com. 7 Nov

David Ransome changed the due date to November 30. 7 Nov

dp

darren.peck@nustarenergy.com

8 Nov at 08:55

Eastham Site 2

Tank 247.

This is a radar and not a Liquiphant?????????

dp

darren.peck...

29 Apr

NuStar Safety Com...

5th April 2016

✓

2016 - 04 - Other than Belfast, Terminals are not fully completing the E/550 Form

During the April Safety Committee review of the faults and activations it was noted that some of the E/550 forms were incomplete

David Ransome created task

7 Apr

David Ransome

8 Apr at 09:52

It is suggested that an example of a completed Belfast form be sent to other terminals to demonstrate how the Safety Committee require the forms completing.

darren.peck@nustarenergy.com

8 Apr at 10:47







email sent out to all terminals along with sample form from Belfast asking for forms to be completed fully and as per the sample


✓


darren.peck@nustarenergy.com completed this Task

8 Apr at 10:47





 **darren.peck...**  **28 Apr**     

NuStar Safety Com... 5th April 2016 



 **2016 - 05 - Clydebank Tank 2 -
02.10.15 - Valve Fault E/550
UKCL020**



After shipping receipt when closing tank side inlet valve, valve did not close in 105 second time limit.

David Ransome created task. 7 Apr
David Ransome added to NuStar Safety Committee Meeting Actions. 7 Apr

 **David Ransome** 7 Apr at 10:23 
NuStar to confirm that the change of actuator was a like for like replacement, i.e. size, torque etc.

David Ransome assigned to darren.peck@nustarenergy.com. 7 Apr
David Ransome changed the due date to April 28. 7 Apr

 **darren.peck@nustarenergy.com** 7 Apr at 10:45 
Confirmed that the change was like for like.

 **darren.peck@nustarenergy.com completed this Task.** 7 Apr at 10:46 



MM

Martin M

Monday

NuStar Safety Com...

5th April 2016

✓

2016 - 06 - A working group of the Safety Committee to produce a risk assessment for Cyber Security with respect to the SIS.

Description

Cyber Security Risk Assessment.pdf

OG - Cyber security at hazardous installations V16 for ex consultation clean copy.pdf

2 more comments

David Ransome changed the due date to October 21.

29 Jul

David Ransome

29 Jul at 12:58

email 29.10.16

I have updated Action 2016-06 from the Safety Panel meeting, by including the template for the Security Risk Assessment (currently in pdf format) and the HSE Operational Guidance, also attached to this email.

NuStar will need to decide how they wish to proceed, but I would suggest... [See More](#)

David Ransome assigned to Martin Morgan.

17 Aug

David Ransome changed the due date to September 16.

17 Aug

David Ransome

17 Aug at 10:19

P & I Design Ltd to prepare a quotation for assisting NuStar with Risk Assessment.

Martin Morgan changed the due date to November 4.

13 Oct

David Ransome changed the due date to November 11.

7 Nov

MM

Martin Morgan

Today at 10:28

I will prepare a proposed scope of work and methodology for consideration at the safety committee meeting on 30th Nov. Further clarification recently received on expectations and timescale for COMAH sites from HSE at 2016 international functional safety conference in London.



 David R  30 Nov     

NuStar Safety Com...

5th April 2016 ▾

 **2016 - 07 - Awareness Training for Operators at Eastham**

Another course is to be presented at Eastham

David Ransome created task. 5 Apr

 **David Ransome** 8 Apr at 09:58 

Arrange a date for Eastham training



NuStar Safety Com...

5th April 2016 ▾



2016 - 08 - A working group of the Safety Committee to produce a risk assessment for Cyber Security with respect to the SIS.

Description



Cyber Security Risk Assessment.pdf



OG - Cyber security at hazardous installations V16 for ex consultation clean copy.pdf

[2 more comments](#)

David Ransome changed the due date to October 21. 29 Jul



David Ransome 29 Jul at 12:58



email 29.10.16

I have updated Action 2016-06 from the Safety Panel meeting, by including the template for the Security Risk Assessment (currently in pdf format) and the HSE Operational Guidance, also attached to this email.

NuStar will need to decide how they wish to proceed, but I would suggest... [See More](#)

David Ransome assigned to Martin Morgan. 17 Aug

David Ransome changed the due date to September 16. 17 Aug



David Ransome 17 Aug at 10:19



P & I Design Ltd to prepare a quotation for assisting NuStar with Risk Assessment.

Martin Morgan changed the due date to November 4. 13 Oct

David Ransome changed the due date to November 11. 7 Nov



Martin Morgan Today at 10:28



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6 DATE OF NEXT MEETING

30th November 2016 at Belfast.



Signature Certificate



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David Ransome

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Audit

All parties have signed document. Signed copies sent to: David Ransome and P I Design Ltd.

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