



<u>QUALITY ASSURANCE PROCEDURE</u>	
COMPLETION CERTIFICATE	

CLIENT:GACO
END USER : Petroleum Pipelines Company
ADDRESS: Cairo,Egypt

SITE: El Tebeen

CLIENT ORDER: NFPO005597

REF: NF15-099

The following systems/items of equipment*
 have been satisfactorily commissioned and handed over to the client.

ITEM REF/TAG NO.	DESCRIPTION
National Foam bladder tanks 600USG and 1200USG	<p>Two NF foam bladder tanks (600 usg + 1200usg) and 3" Ratio controllers supplied under the above purchase order has been filled and commissioned and are considered handed over to the client and end user.</p> <p>The bladder tanks have been filled with 6% FP foam concentrate in accordance with the manufacturers instructions and following the filling process a bladder integrity check has been conducted.All system piping and installation checked and found to be of the required standard.</p> <p>A full flow / pressure (8 bar nominal inlet pressure) foam discharge test of each system has also been carried out on all 3 proportioners via system sprinklers and foam pourers by operation of the zonal deluge valves.Good quality cohesive foam blanket produced in each zone.Coverage and flow rates were as per requirements of NFPA and those of manufacturer</p> <p>From representative samples of produced solution we have measured the site foam concentrate proportioning rates as follows, please refer to calibration graph :</p> <p>600 usg tank pump raft Induction rate – 6.6 % 1200 usg tank tanker loading bays induction rate - 6.25 % 1200 usg tank pump raft induction rate – 6.25 %</p> <p>These results are satisfactory as per the requirements of NFPA 11 and those of the manufacturer.</p> <p>All testing conducted and witnessed by PPC, GACO personnel and those of National Foam. Training on the operation and maintenance of Bladder tank systems has been carried out for the end user to use in future.</p>

Accepted by authorised
Client Representative

NAME:Abdallah El Garhi (GACO)

POSITION: Project Eng

SIGNATURE:

Commissioned by authorised
Representative

NAME:Nick Swindlehurst

POSITION:Commissioning Egr

SIGNATURE:

19/10/16



19/10/16

National Foam Inc. 350 East Union St. West Chester, PA 19382
 Office: 610-363-1400

www.nationalfoam.com

FOAM SOLUTION EVALUATION



Report Number : 1 **Customer :** GACO - Egypt
End user : Petroleum pipelines company
Customer Order Ref : NFPO005597 **Works Order Ref :** Site foam induction test
Date Received : 19/10/16 **Date Completed :** 19/10/16
Sample Ref : Foam pourers **Number of Samples :** 3
Type Declared : FP 6%
Sample Details : Taken from foam bag tank systems and foam pourers
Scope : To determine the concentration of a foam/water premix
Summary : A calibration curve of conductivity against foam/water concentration was prepared using the concentrate and water sample provided. Then the conductivity of the foam/water sample was measured and the concentration calculated from the calibration curve.
Results : The concentration of the base samples were found to be as follows:

<u>Standard</u>	<u>Conductivity</u>
4%	256
6%	336
8%	412

600 gallon pump raft - 354 = 6.6%
1200 gallon Tanker loading - 346 = 6.25%
1200 gallon pump raft - 345 = 6.25%

Sample within allowable tolerances
Sample within allowable tolerances
Sample within allowable tolerances



N Swindlehurst
Approved by Nick Swindlehurst

Commissioning Engineer 19-10-16

The conclusions drawn in this report are based on a strict interpretation of the samples as submitted. It has been assumed that the samples submitted are representative of the parent stock. Our assessments are based on the characteristics of the Angus Fire range of foam concentrates. However Angus Fire accepts no responsibility or liability in respect of the subsequent performance of the foam when used in conditions outside our control.

Petroleum Pipelines Company -Bladder tank systems

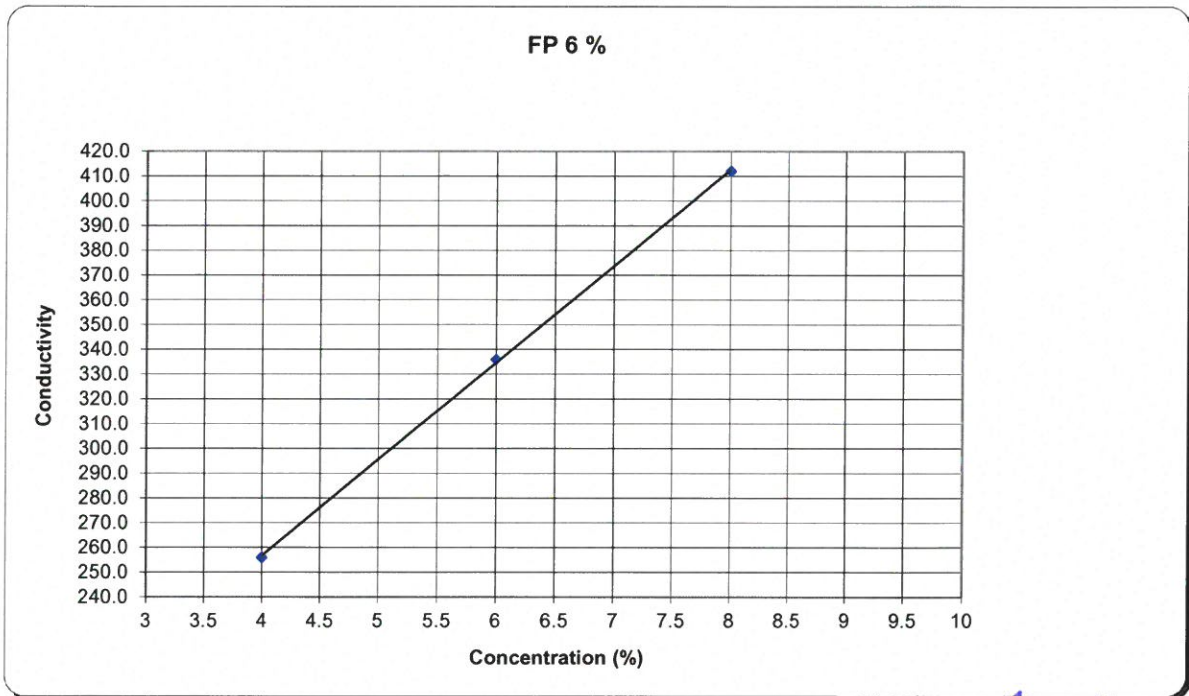
Foam Type : FP 6 %

Calibration Values

Concentration (%)	Conductivity
4	256.0
6	336.0
8	412.0

Analysis Results

Sample Reference	Conductivity	Calculated Concentration (%)
600 - pump raft	354.0	6.60%
1200-Tanker bays	346.0	6.25%
1200 - pump raft	345.0	6.25%



Nick Swindlehurst
For National Foam 19/10/16

