AGIS Fire & Security

Palisadowa 20/22
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TFS & BP FM-200 FLOW CALCULATION TSP3.12b
Project: PROMERANIA TECHNOPARK
File Name: Serw A019.FLC

Consolidated Report

Customer Information

Company Name:	Przedsiębiorstwo Usług Specjalistycznych MVB
Address:	Widuchowska 19 71-718 Szczecin
Phone:	
Contact:	
Title:	

Project Data

Project Name:	PROMERANIA TECHNOPARK
Designer:	Krzysztof Majcher
Number:	
Account:	
Location:	
Description:	

Calculation Date/Time: 22 październik 2013, 14:27:33

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Consolidated Report
Enclosure Information

Elevation:	0 m (relative to sea level)
Atmospheric Correction Factor:	1

Enclosure Number:	1
Name:	Przestrzeń właściwa
Enclosure Temperature...	
Minimum:	20,0 C
Maximum:	25,0 C
Maximum Concentration:	8,690 %
Design Concentration...	
Adjusted:	8,547 %
Minimum:	8,500 %
Minimum Agent Required:	103,9 kg
Width:	0,00 m
Length:	0,00 m
Height:	0,00 m
Volume:	153,06 cubic m
Non-permeable:	0,00 cubic m
Total Volume:	153,06 cubic m
Adjusted Agent Required:	104,5 kg
Number of Nozzles:	1

Enclosure Number:	2
Name:	Podłoga techniczna
Enclosure Temperature...	
Minimum:	20,0 C
Maximum:	25,0 C
Maximum Concentration:	8,752 %
Design Concentration...	
Adjusted:	8,608 %
Minimum:	8,500 %
Minimum Agent Required:	13,4 kg
Width:	0,00 m
Length:	0,00 m
Height:	0,00 m
Volume:	19,62 cubic m
Non-permeable:	0,00 cubic m
Total Volume:	19,62 cubic m
Adjusted Agent Required:	13,5 kg
Number of Nozzles:	1

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Consolidated Report
Agent Information

Agent: FM-200 / Propellant N2
(FM-200 is a Trademark of DuPont)

Adjusted Agent Required:	118,0 kg
Container Name:	147L TPED Container Assy
Container Part Number:	303.205.014
Number of Main Containers:	1
Number of Reserve Containers:	0
Manifold:	No Manifold
Pipe Take Off Direction:	Horizontal
Agent Per Container:	118,0 kg
Fill Density:	0,803 kg / l
Container Empty Weight:	103,7 kg
Weight, All Containers + Agent:	221,7 kg
Floor Area Per Container:	0,13 square m
Floor Loading Per Container:	1712 kg /square m

Pipe Network

Part 1 - Pipe

Description	Start	End	Pipe Type	Pipe Diameter	Pipe Length	Pipe Elevation
Main Cyl. X 1	0	1		50 mm	1,35 m	1,35 m
Pipe	1	2	DIN2440	40 mm	3,50 m	3,50 m
Pipe	2	3	DIN2440	40 mm	0,50 m	0,00 m
Pipe	3	4	DIN2440	40 mm	1,40 m	0,00 m
Pipe	4	5	DIN2440	40 mm	3,30 m	0,00 m
Pipe/E1-N1	5	6	DIN2440	40 mm	0,10 m	-0,10 m
Pipe	3	7	DIN2440	20 mm	0,50 m	0,00 m
Pipe	7	8	DIN2440	20 mm	0,55 m	0,00 m
Pipe	8	9	DIN2440	20 mm	4,90 m	-4,90 m

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Part 1 - Pipe

			Pipe			
Description	Start	End	Type	Diameter	Length	Elevation
Pipe	9	10	DIN2440	20 mm	2,50 m	0,00 m
Pipe/E2-N1	10	11	DIN2440	20 mm	0,10 m	-0,10 m

Part 2 - Equivalent Length

Start	End	90	45	Thru	Side	Union	Other	Added	Total
0	1	0	0	0	0	0		0,00 m	10,67 m
1	2	1	0	0	0	0		0,00 m	4,82 m
2	3	1	0	0	0	0		0,00 m	1,80 m
3	4	0	0	1	0	0		0,00 m	2,23 m
4	5	1	0	0	0	0		0,00 m	4,60 m
5	6	1	0	0	0	0		0,00 m	1,40 m
3	7	0	0	0	1	0		0,00 m	1,86 m
7	8	1	0	0	0	0		0,00 m	1,22 m
8	9	1	0	0	0	0		0,00 m	5,58 m
9	10	1	0	0	0	0		0,00 m	3,17 m
10	11	1	0	0	0	0		0,00 m	0,76 m

Part 3 - Nozzles

Start	End	Flow	Name	Size	Type	Nozzle Area
0	1	118,0 kg				
1	2	118,0 kg				
2	3	118,0 kg				
3	4	104,5 kg				
4	5	104,5 kg				
5	6	104,5 kg	E1-N1	40 mm	360-AL (BSP)	966,10 square mm
3	7	13,5 kg				
7	8	13,5 kg				
8	9	13,5 kg				
9	10	13,5 kg				
10	11	13,5 kg	E2-N1	20 mm	180-AL (BSP)	204,57 square mm

Parts Information

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Total Agent Required: 118,0 kg
Container Name: 147L TPED Container Assy (Part: 303.205.014)
Number Of Containers: 1

Nozzle	Type	Diameter	Nozzle Area	Part Number
E1-N1	360-AL (BSP)	40 mm	966,10 square mm	310.205.112
E2-N1	180-AL (BSP)	20 mm	204,57 square mm	310.205.105

Nozzle	Drill Diameter	Drill Size
E1-N1	12,4000 mm	12.4 mm
E2-N1	6,1000 mm	6.1 mm

Pipe:	Type	Diameter	Length
	DIN2440	20 mm	8,55 m
	DIN2440	40 mm	8,80 m

List of 90 degree elbows:
4 - 20 mm
4 - 40 mm

List of Tees:
1 - 40 mm

System Acceptance

System Discharge Time:	9,8 seconds
Percent Agent In Pipe:	21,6%
Percent Agent Before First Tee:	10,0%
Enclosure Number:	1
Enclosure Name:	Przestrzeń właściwa
Minimum Design Concentration:	8,500%
Adjusted Design Concentration:	8,547%
Predicted Concentration:	8,527%
Maximum Expected Agent Concentration:	8,669% (At 25,0 C)

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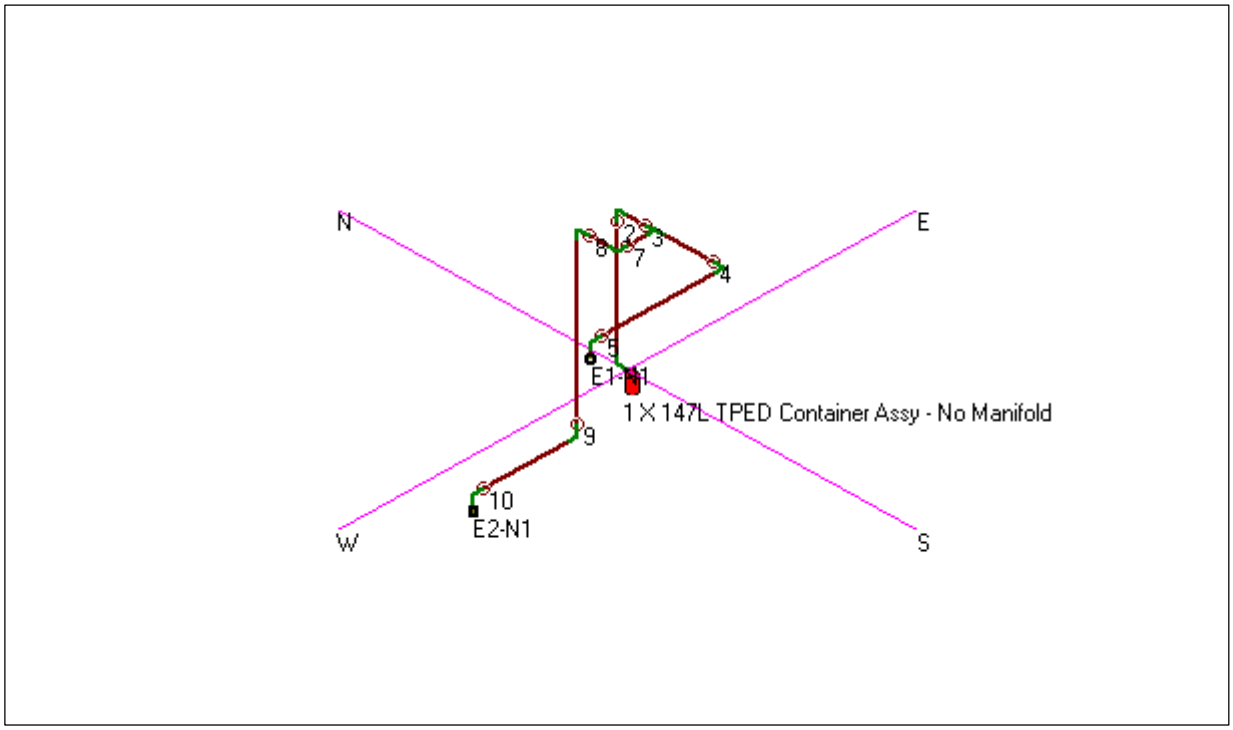
Nozzle	Minimum Agent Required	Adjusted Agent Required	Predicted Agent Delivered	Nozzle Pressure (Average)
E1-N1	103,9 kg	104,5 kg	104,2 kg	7,391 bar

Enclosure Number: 2
Enclosure Name: Podłoga techniczna

Minimum Design Concentration: 8,500%
Adjusted Design Concentration: 8,608%
Predicted Concentration: 8,772%
Maximum Expected Agent Concentration: 8,918% (At 25,0 C)

Nozzle	Minimum Agent Required	Adjusted Agent Required	Predicted Agent Delivered	Nozzle Pressure (Average)
E2-N1	13,4 kg	13,5 kg	13,8 kg	7,011 bar

Standard Isometric View



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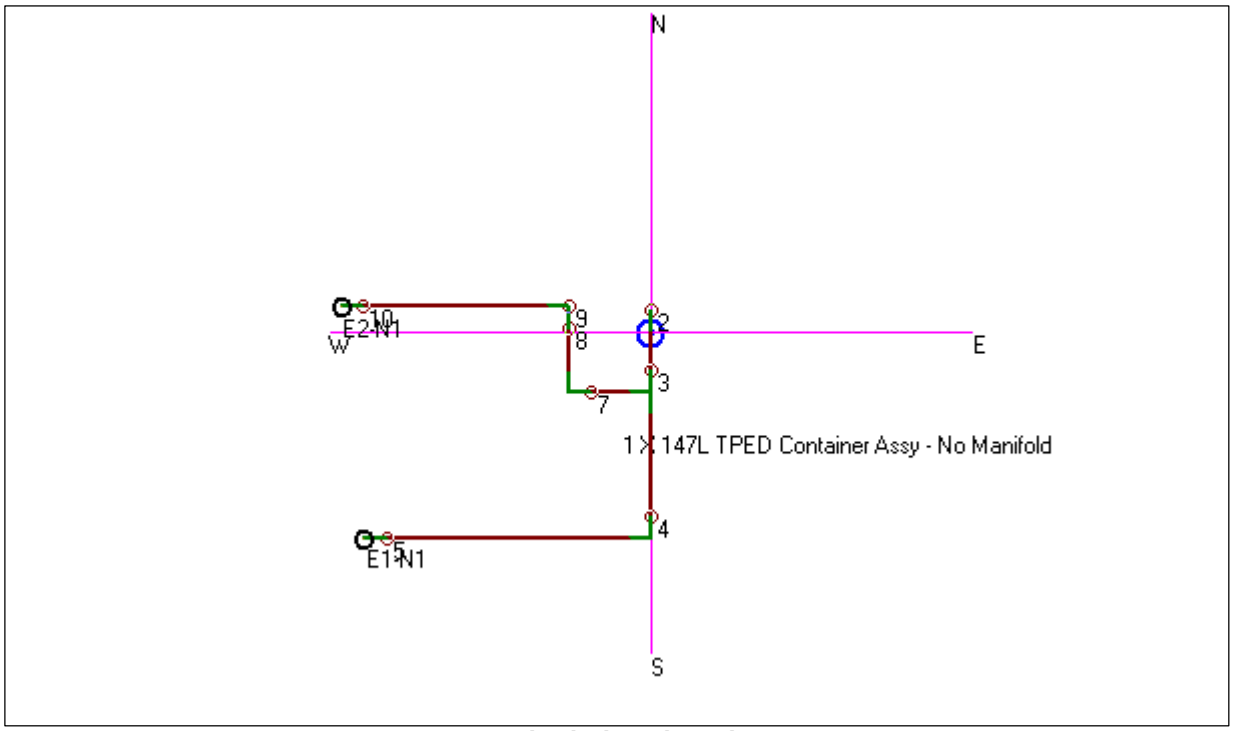
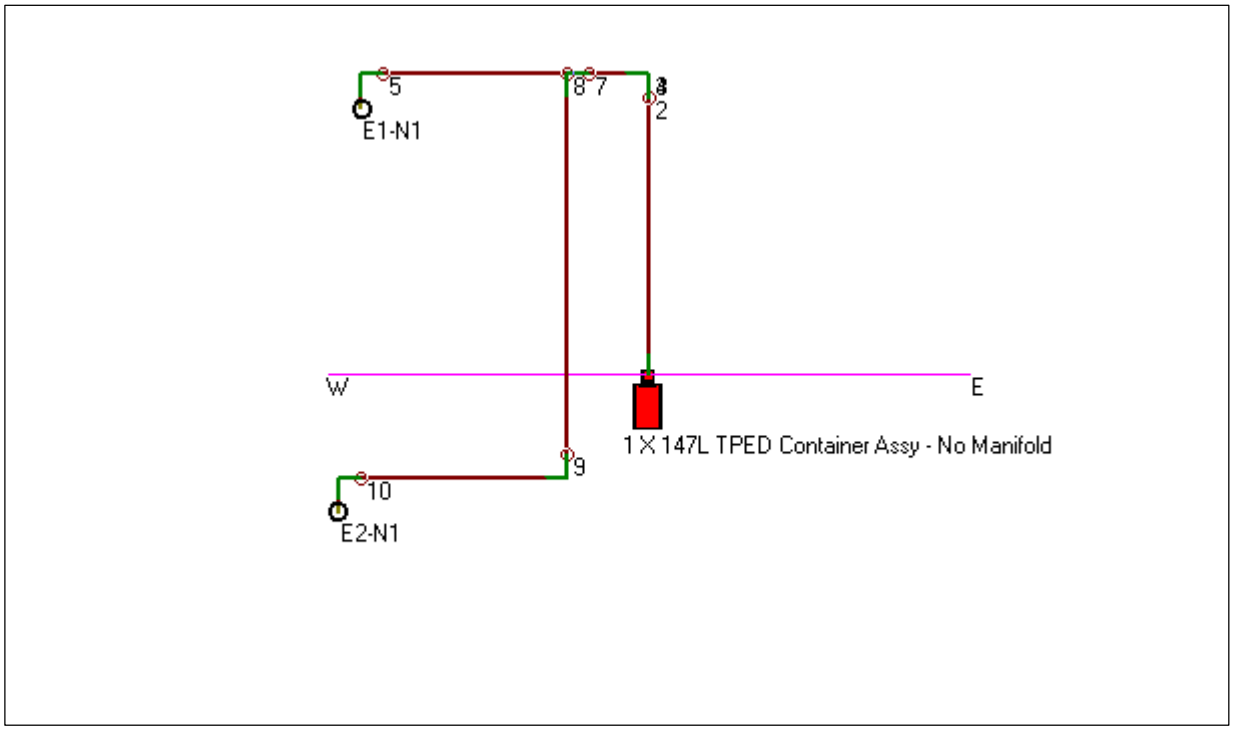
Standard Plan View



Standard Elevation View



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