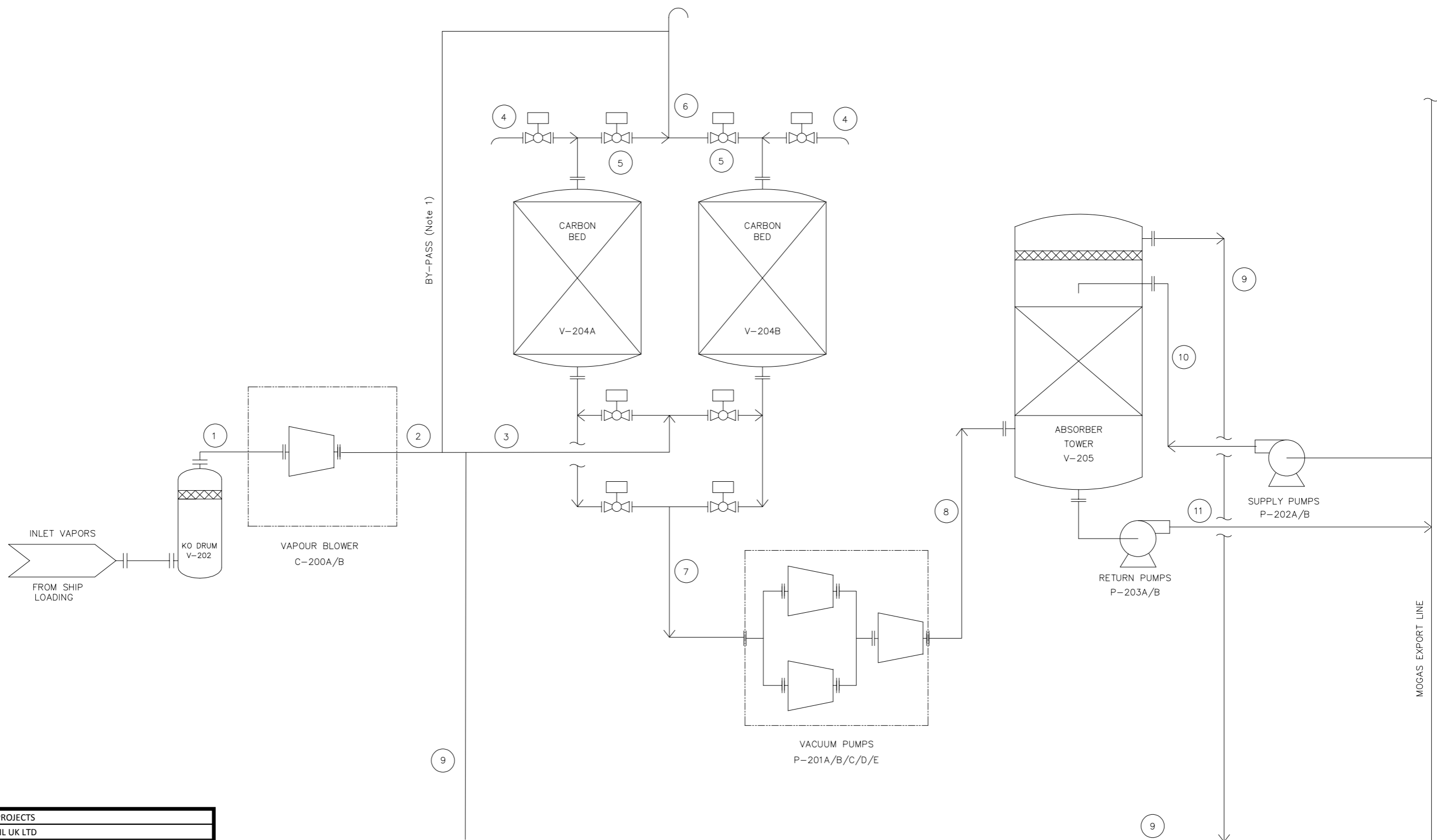


NOTES:
1. Normally No Flow



PROJECT TITLE: ESSAR PROJECTS	
CLIENT NAME: ESSAR OIL UK LTD	
SUPPLIER NAME: AEREON EUROPE SRL	
PROJECT NO: --10001/	PROJECT LOCATION: STOCKTON
PO NO: 720801/851541	CLIENT ORDER NO: 4505851541
REQ NO: 720801-1911E001	
TAG NOS:	
SUPPDOONO: NPR20222-A-DGM-001	
CLDOONO:	
DOC TYPE: F50	SUPPLIER REV: 04
DSN: 3166	FW REV: 5
Status: CODE 4	
Signed: Rajkumar Subramanian	
Dept: Equipment Engg.	
Date: 07-Sep-2023	
COMMENT STATUS CODE: 1-Rejected; 2-Comments as Noted; 3-Minor Comments Acceptable; 4-No Comments; 5-Info Only	

PROJECT DRAWING No.	AIM No	REFERENCE DRAWINGS DESCRIPTION

PROJ. REV.	REV.	DATE	DRAWN BY	CHECKED BY	APPROVED BY	APPROVED BY ESSAR	DESCRIPTION
04	-	25/07/2023	CP	MP	LDC		ISSUED FOR APPROVAL
03	-	25/05/2023	CP	MP	LDC		ISSUED FOR APPROVAL
02	-	28/02/2023	CP	MP	LDC		ISSUED FOR APPROVAL
01	-	10/01/2023	CP	MP	LDC		ISSUED FOR APPROVAL
00	-	28/10/2022	CP	MP	LDC		ISSUED FOR APPROVAL

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ESSAR OIL UK		wood		AEREON A CHALMERS COMPANY	
Essar Oil (UK) Ltd, Stanlow MOGAS EXPORT PROJECT					
DOC CLASS	PROCESS FLOW DIAGRAMS	UNIT	-	DISCIPLINE	PROCESS
PLANT	PRACK				
TAG No:	VAPOR RECOVERY UNIT				
PROJECT DRAWING NUMBER:	NPR20222-A-DGM-001				REV: 04
AIM DRAWING NUMBER:	-				REV: -
SHEET: 1 OF 2	SCALE: NTS	GBMF NUMBER: 720801			

Stream number (note 6)	1	2	3	4	5	6	7	8	9	10	11
Stream description	Blower Inlet	Blower Outlet	Adsorber inlet vapors	Regen Purge Air	Adsorber Repress Air	Air Vent To Atmosphere (note 3)	Regen Vapors To VP	Vapor Feed To Adsorber tower	Recycle Vapor from To Adsorber	Absorbent Supply	Absorbent Return To Storage
Stream state	Vapor	Vapor	Vapor	Gas	Gas	Gas	Vapor	Vapor	Vapor	Liquid	Liquid
Components, mol%											
Air / Inerts	60,0	60,0	57,3	100,0	100,0	99,8	12,9	12,9	42,0	0,0	0,0
Gasoline vapor	40,0	40,0	42,7	0,0	0,0	0,2	87,1	87,1	58,0	0,0	2,9
Gasoline absorbent	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	100,0	97,1
Seal liquid (note 5)	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Total	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0
H2S, ppmv	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Material balance flowrates, kg/hr											
Air / Inerts	1716,2	1716,2	1929,5	103,8	136,8	1956,9	213,3	213,3	213,3	0,0	0,0
Gasoline vapor	2564,5	2564,5	3223,4	0,0	0,0	7,2	3216,2	3216,2	658,9	0,0	2557,3
Gasoline absorbent	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	123379,1	123379,1
Seal liquid	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Total (note 1)	4280,7	4280,7	5152,9	103,8	136,8	1964,1	3429,5	3429,5	872,2	123379,1	125936,4
Max instantaneous flowrate (note 2)											
Liquid, m3/h	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	160,0	164,3
Vapor/air, m3h	2400,2	2400,2	2820,9	424,8	2111,1	4133,7	8495,1	4272,3	420,8	0,0	0,0
Pressure, mbarg	-15,0	30,0	30,0	0,0	0,0	0,0	(note 4)	200,0	200,0	2827,6	5401,4
Temperature, °C (note 7)	20,0	20,0	20,0	20,0	20,0	20,0	20,0	76,7	20,0	20,0	24,5
Molecular Weight	43,4	43,4	44,4	29,0	29,0	29,1	60,3	60,3	49,9	92,0	91,2

Notes:

- (1): Because this is not a steady state process, material balance flowrates are averaged based on the 4 hour product loading volume.
- (2): Instantaneous flowrates are the maximum to be expected at any instant of time.
- (3): Gasoline vapor in air vent stream is calculated based on guarantee (10 g/Nm3 NMVOC and < 1 mg/Nm3 Benzene). Actual NMVOC emissions are typically much less (2-3 g/Nm3).
- (4): Pressure of stream #7 varies from atmospheric pressure to 100 mbara.
- (5): Seal liquid N/A.
- (6): Refer to the attached Figure #1 for a flow schematic illustrating location of stream numbers.
- (7): Average ambient temperature was used in calculations.

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PROJ. REV.	REV.	DATE	DRAWN BY	CHECKED BY	APPROVED BY	APPROVED BY ESSAR	DESCRIPTION
04	-	25/07/2023	CP	MP	LDC		ISSUED FOR APPROVAL
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Essar Oil (UK) Ltd, Stanlow					
MOGAS EXPORT PROJECT					
DOC CLASS	PROCESS FLOW DIAGRAMS	UNIT	-	DISCIPLINE	PROCESS
AREA	PRACK	PLANT			
TAG No:	VAPOR RECOVERY UNIT				
PROJECT DRAWING NUMBER:	NPR2022-A-DGM-001				REV: 04
AIM DRAWING NUMBER:	-				REV: -
SHEET: 2 OF 2	SCALE: NTS	GBMF NUMBER: 720801			

