RENEWABLE NATURAL GAS (RNG) PROJECT

Waste Management of California, Inc.

Simi Valley Landfill and Recycling Center

March 23, 2023

Ali R. Ghasemi, P.E.
Executive Officer
Ventura County APCD

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Air Pollution
Control District

Simi Valley Landfill

- Located at 2801 Madera Road in Simi Valley
- North of Highway 118 and Northwest of City of Simi Valley
- In Operation Since 1970
- Current: Two 165 MMBTU/Hr Flares With Capacity of 5,500 SCFM, 11,000 SCFM Total
- Landfill Gas Previously Combusted in Lean Burn Engines for Electricity Sales to SCE
- Maximum Landfill Gas Capacity 16,500 SCFM Would Require Three (3) Flares

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Simi Valley Landfill

Air Permitting Challenges

- Three 165 MMBTU/Hr Flares at 16,500 SCFM Capacity Triggers Offset Requirements
- VCAPCD Rule 26.2.B = Offset Thresholds
- ROC and NOx=25 Tons/Yr Offset Threshold for Essential Public Services (5 TPY Others)
- ROC and NOx=$50,000 - $75,000 Per Ton
- PM10 and SOx=15 Tons/Yr Offset Threshold
- PM10 and SOx Offsets Not Available in Bank
- Offsets Not Required for CO

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RNG Project Overview

- $100 Million Investment
- RNG = Biogas That Has Been Upgraded for Use in Place of Fossil Natural Gas (EPA)
- AB-1900 (Gatto) in 2012 to Increase and Facilitate Pipeline Biomethane Use in CA
- Landfill Gas = 50% Methane, 500 BTU/CF
- Contaminants = NMOC, CO_2, O_2, N_2, H_2S
- RNG = 96.5% Methane, 970 to 1150 BTU/CF
- SoCal Gas Rule 30 (I) and SoCal Gas Rule 45(I)
- RNG Will be Sold to SoCal Gas Pipeline, and/or RNG Will be Compressed - Vehicle Fuel (CNG)

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RNG Facility Specifications

- RNG Landfill Gas Capacity = 10,300 SCFM
- RNG Production = 4,334 SCFM (42%)
- Low BTU Waste Gas to Thermal Oxidizer
- New Flare for Off-Spec RNG Pipeline Gas
- Remaining Landfill Gas at Maximum Capacity = 16,500 – 10,300 = 6,200 SCFM
- Landfill Gas Flares Remain for Excess or for RNG Facility Maintenance / Breakdown

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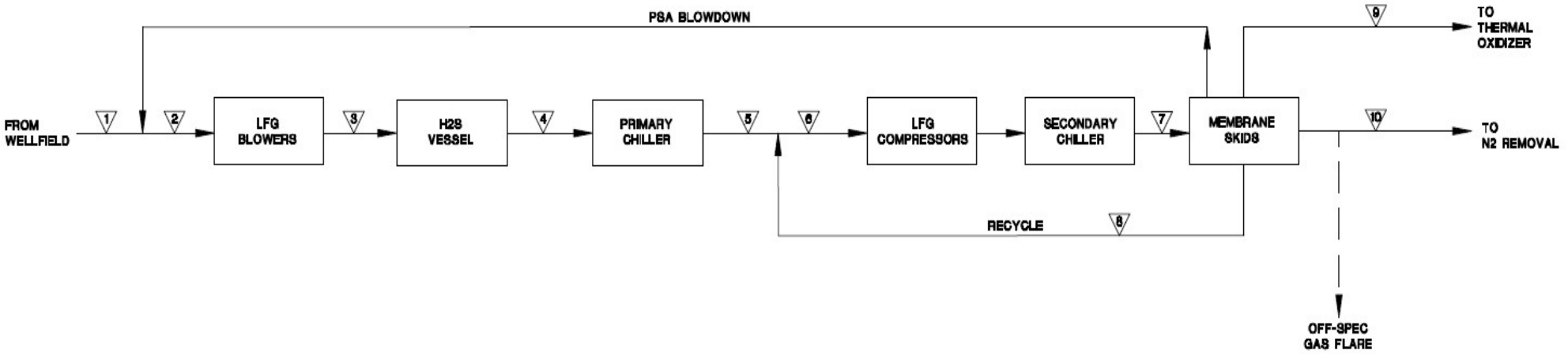
RNG Facility Technology

- H_2S = Non-Regenerative Media
- NMOC = Pressure Swing Adsorption (PSA) and Non-Regenerative Activated Carbon
- CO_2 = Membrane / Filter Technology
- N_2 and O_2 = Pressure Swing Adsorption
- RNG Facility is Mostly Enclosed Vessels With Very Few Emission Points
- PSA Media = Zeolite, Carbon, Silica Gel, etc.
- PSA Purge Gas to Thermal Oxidizer
- Low BTU Waste Gas to Thermal Oxidizer



	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
PRESSURE (PSIG)	-2.5	-2.5	-2.5	6.2	6.2	5.2	4.0	205	4.5	2.0	110	90	1.0	100	250
TEMPERATURE (F)	120	120	120	107	107	45	53	60	70	60	62	62	61	105	105
FLOW (SCFM)	10,300	11,999	12,799	11,682	11,729	11,173	16,312	16,240	5,139	4,109	6,264	1,929	6,038	4,334	4,334
METHANE	43.40	37.25	37.25	41.08	41.08	43.10	38.92	39.09	29.84	4.43	66.51	5.56	4.79	96.53	96.53
CARBON DIOXIDE	35.20	30.22	30.22	33.32	33.32	34.95	38.99	39.17	47.78	88.00	1.00	0.10	59.91	1.40	1.40
NITROGEN	19.60	16.82	16.82	18.55	18.55	19.46	18.87	18.96	17.59	3.33	29.68	91.87	31.62	2.00	2.00
OXYGEN	1.80	1.55	1.55	1.70	1.70	1.79	2.71	2.72	4.71	3.96	0.81	2.47	3.48	0.07	0.07
WATER	0.00	14.16	14.16	5.35	5.35	0.70	0.50	0.06	0.06	0.26	0.00	0.00	0.19	0.00	0.00
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

FOR AIR PERMIT

NAME: EXPIRATION DATE: PROFESSIONAL ENGINEER LIC. NO.

SCS ENERGY
3900 KILROY AIRPORT WAY
LONG BEACH, CA 90806
(562) 426-9544

PROJ. NO. 0622101C.04 | DWN. BY: DL | ACAD FILE:
DSN. BY: JP | CHK. BY: JJC | APP. BY: JP

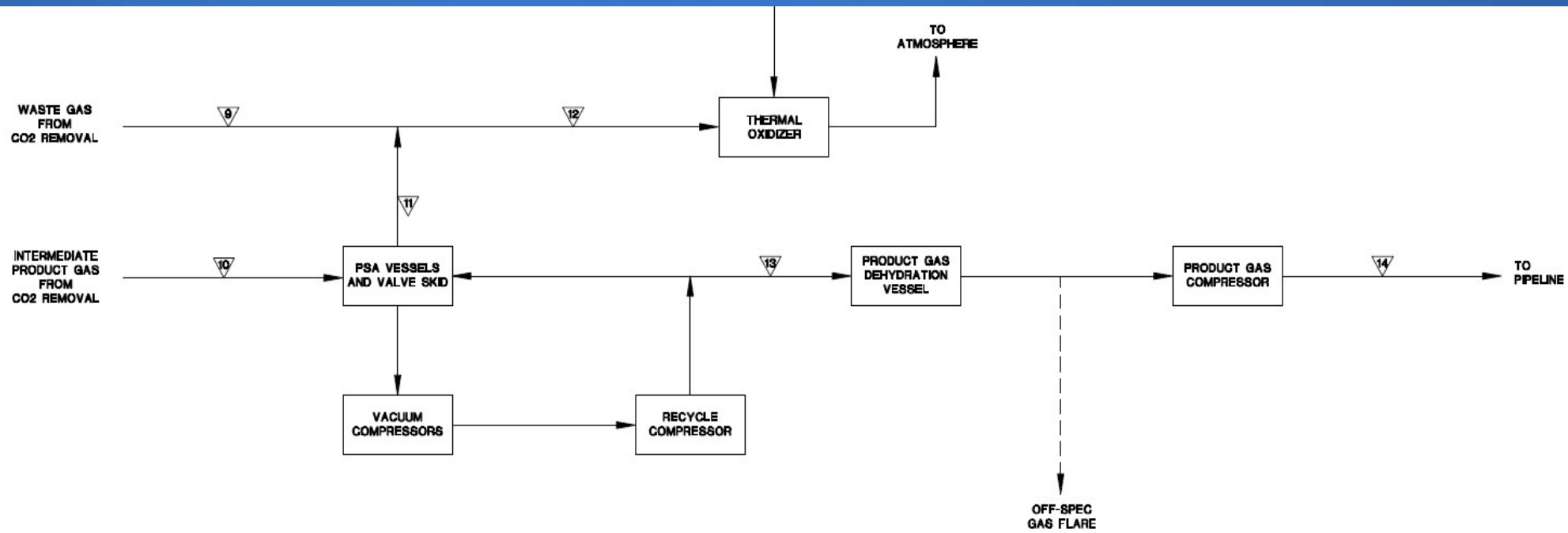
CLIENT: WM RENEWABLE ENERGY

SHEET TITLE: PROCESS FLOW DIAGRAM CARBON DIOXIDE REMOVAL

PROJECT TITLE: SIMI VALLEY RNG PLANT

NO.	REVISION	DATE

PROJECT DATE: 03/31/22
SCALE: AS SHOWN
DRAWING NO. P-100



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NITROGEN REMOVAL

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DRAWING NO. P-101

Thank you!

Any Questions?