DES
DEPARTMENT OF ENVIRONMENT AND SUSTAINABILITY
air quality desert conservation PROGRAM sustainability

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PART 70 OPERATING PERMIT TECHNICAL SUPPORT DOCUMENT
(STATEMENT of BASIS)

APPLICATION FOR:
Significant Revision

Application Received: July 14, 2025

SUBMITTED BY:
Trinity Consultants

FOR:
MGM Resorts International
Source: 00825

LOCATION:
3600 South Las Vegas Boulevard
Las Vegas, Nevada 89109

SIC Codes 7011, "Hotels and Motels"
SIC Code 7999, "Amusement and Recreation Services, Not Elsewhere Classified
NAICS Code 721120, "Casino Hotels"
NAICS Code 711310, "Promoters of Performing Arts, Sports, and Similar Events with Facilities"

TSD Date: January 26, 2026

EXECUTIVE SUMMARY

MGM Resorts International (MGMRI) operates under SIC Codes 7011, "Hotels and Motels," and 7999, "Amusement and Recreation Services, Not Elsewhere Classified" and NAICS codes 721120, "Casino Hotels" and 711310, "Promoters of Performing Arts, Sports, and Similar Events with Facilities." MGMRI is located in Clark County, Nevada, on South Las Vegas Boulevard. The permittee is a major source located in Hydrographic Area (HA) 212, the Las Vegas Valley. HA 212 is in attainment for all regulated air pollutants except ozone. The EPA designated Hydrographic Area 212 as a serious nonattainment area for ozone on January 21, 2025. Clark County has drafted or imposed new requirements to address this designation to include reducing the major source thresholds for NO_x and VOC pollutants to 50 tons per year. This results in the source being reclassified as a major source for VOC pollutants, based on DAQ rounding rules.

MGMRI is permitted under the New Source Review (NSR) regulations as a Nonattainment NSR (NNSR) major source of NO_x, as a Prevention of Significant Deterioration (PSD) major stationary source of CO, an SM80 source for VOC, and a minor source of all other regulated pollutants. MGMRI is also a source of greenhouse gasses (GHG). The source operates a combination of fossil-fuel boilers with a cumulative heat-input rating exceeding 250 million Btu per hour, which classifies it as a categorical source under AQR 12.2.2(j).

The emission units and activities at the MGMRI properties are divided among 12 properties. Emission units present at this source include natural gas boilers and water heaters, diesel-powered emergency generators and fire pumps, cooling towers, woodworking operations, gasoline storage and dispensing equipment, two natural gas turbines, and pyrotechnic equipment.

The following table summarizes the source potential to emit for each regulated air pollutant from all emission units addressed by this Part 70 Operating Permit (Part 70 OP).

Table 1: Source Potential To Emit

Pollutant	PM_{10}	$PM_{2.5}$	NO_X	CO	SO_2	VOC	HAP	Pb	H_2S	GHG[1]
Tons/year	82.94	79.45	784.60	351.46	3.94	48.64	11.36	0	0	583,675.57
Major Source Thresholds (Title V/Categorical)	100	100	100	100	100	100	10/25[2]	-	-	-
Major Source Thresholds (Serious Nonattainment)	100	100	50	100	100	50	10/25[2]	-	-	-

[1]GHG expressed as CO_2e

[2]10 tons for any individual HAP or 25 tons for combination of all HAPs.

DAQ will continue to require the sources to estimate their GHG potential to emit in terms of each individual pollutant (CO_2, CH_4, N_2O, SF_6). The TSD includes these PTEs for informational purposes.

This source is subject to 40 CFR Part 60, Subparts Dc, IIII, and KKKK and 40 CFR Part 63, Subparts ZZZZ and CCCCCC.

DAQ has received delegated authority from the U.S. Environmental Protection Agency to implement the requirements of the Part 70 OP. Based on the information submitted by the applicant, supplemental information provided to the application, and a technical review performed by DAQ staff, the draft Part 70 OP revision is proposed.

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I. ACRONYMS AND ABBREVIATIONS

Acronym	Term
AQR	Clark County Air Quality Regulation
AST	aboveground storage tank
ATC	Authority to Construct
CARB	California Air Resources Board
CFR	Code of Federal Regulations
CO	carbon monoxide
CO_2	carbon dioxide
DAQ	Division of Air Quality
DES	Clark County Department of Environment and Sustainability
DOM	date of manufacture
EPA	U.S. Environmental Protection Agency
EU	emission unit
GDO	gasoline dispensing operation
GHG	greenhouse gas
HAP	hazardous air pollutant
hp	horsepower
kW	kilowatts
MMBtu/hr	Millions of British Thermal Units per Hour
MSP	Minor Source Permit
NAC	Nevada Administrative Code
NAICS	North American Industry Classification System
NESHAP	National Emission Standards for Hazardous Air Pollutants
NNSR	Nonattainment New Source Review
NO_X	nitrogen oxides
NSPS	New Source Performance Standard
OP	Operating Permit
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
PM_{10}	particulate matter less than 10 microns in diameter
ppm	parts per million
PSD	Prevention of Significant Deterioration
PTE	potential to emit
RICE	reciprocating internal combustion engine
SDS	Safety Data Sheet
SIP	State Implementation Plan
SIC	Standard Industrial Classification
SM80	Synthetic Minor – one or more pollutants exceed 80% of major source threshold
SO_2	sulfur dioxide
UST	underground storage tank
VEE	Visible Emissions Evaluation
VOC	volatile organic compound

II. SOURCE DESCRIPTION

A. PROCESS DESCRIPTION

MGMRI operates multiple resort hotels and casinos and a sports/entertainment center. The properties that have been consolidated for this permit are identified in Table II-A-1. In addition, the permittee operates a public tram that runs between the Mandalay Bay, Excalibur, and Luxor hotels.

Table II-A-1. MGMRI Property Identification

MGM Grand, 3799 S. Las Vegas Boulevard	**Bellagio**, 3600 S. Las Vegas Boulevard
City Center, 3730 S. Las Vegas Boulevard	**Park MGM**, 3770 S. Las Vegas Boulevard
T-Mobile Arena, 3780 S. Las Vegas Boulevard	**New York-New York,** 3790 S. Las Vegas Boulevard
Excalibur, 3850 S. Las Vegas Boulevard	**Luxor**, 3900 S. Las Vegas Boulevard
Mandalay Bay, 3950 S. Las Vegas Boulevard	**The Four Seasons**, 3960 S. Las Vegas Boulevard
The Signature at MGM Grand, 145 E. Harmon Ave.	**The Cosmopolitan of Las Vegas,** 3708 S. Las Vegas Blvd.

B. CURRENT PERMITTING ACTION

This permitting action combines three applications, two minor revision and one significant revision. This combination results in the permitting action being classified as a significant revision. Due to the major source threshold for VOC pollutants being reduced to 50 tons per year, the source is being reclassified as an SM80 source for VOC pollutants. The current Title V operating permit will expire on May 18, 2027.

Minor Revision Application – July 14, 2025

This application meets the AQR 12.5.2.14 criteria for a minor revision. It doesn't violate any applicable requirement, doesn't involve making significant changes to existing permit requirements, does not require a RACT analysis, and no NSPS or NESHAP regulations are applicable to the new unit being added to the operating permit.

- Removal of three 1.35 MMBtu/hr natural gas-fired boilers from Bellagio, previously identified as EUs: BE154, BE158, and BE159.
- Removal of two 1.8 MMBtu/hr natural gas-fired boilers from Mandalay Bay, previously identified as EUs: MB043 and MB057.
- Addition of twenty four 0.199 MMBtu/hr natural gas-fired water heaters to Bellagio. These units have been added to EU: BE193, which consists of the compilation of all natural gas-fired boilers with ratings below 1.00 MMBtu/hr.
- Addition of two 1.795 MMBtu natural gas-fired boilers to Mandalay Bay, identified as MB145 and MB146.
- Addition of two 4.999 MMBtu natural gas-fired boilers to Mandalay Bay, identified as MB147 and MB148.

Minor Revision Application – July 29, 2025

This application meets the AQR 12.5.2.14 criteria for a minor revision. It doesn't violate any applicable requirement, doesn't involve making significant changes to existing permit requirements, does not require a RACT analysis, and no additional NSPS or NESHAP regulations are being added.

- Reclassification of three spray booths from emission units to insignificant activities for MGM, previously identified as EUs: MG29, MG39, and MG40.
- Reclassification of three spray booths from emission units to insignificant activities for Mandalay Bay, previously identified as EUs: MB087, MB104, and MB105.
- Removal of the spray booth for powder coating activities from Bellagio, previously identified as EU: BE99.
- Reclassification of three spray booths from emission units to insignificant activities for Bellagio, previously identified as EUs: BE96, BE97, and BE98.
- Reclassification of one spray booth from emission unit to insignificant activity for Four Seasons, previously identified as EU: FS005.

The reclassification of the spray booths is permissible in accordance with DAQ Policy PER-021 *Ancillary Surface Coating Operations* which states: "Permitting will designate surface coating activities that are ancillary to the primary function of a source or facility as insignificant activities. Examples include painting activities, with or without a paint booth, that are used for facility maintenance and repair, for educational purposes, or as part of minor construction or research-related activities."

The permittee submitted five years of actual emissions records for all ancillary spray booths, demonstrating combined VOC emissions of less than 2 tons per year. Consequently, the spray booths have been reclassified as insignificant activities.

All permit conditions pertaining to surface coating activities have been removed from Operational Limitations, Controls, Monitoring, and Recordkeeping sections of the operating permit.

Significant Revision Application – July 14, 2025

This application consists, solely, of a RACT analysis as required by AQR 120. For this reason, the application meets the criteria for a significant revision. AQR Section 120, which became effective on December 18, 2024, is applicable to owners and operators of major stationary sources located within hydrographic areas that are designated as nonattainment for ozone. Section 120.2 requires permittees to submit an updated RACT analysis when a hydrographic area is designated, or reclassified, as nonattainment. Section 120.4 establishes a timeframe for RACT submittals as 120 days after the Control Officer provides written notice to the permittee. On April 3, 2025, DES sent notifications to all sources affected by the reclassification of Hydrographic Area 212 as serious nonattainment for ozone, with a specified deadline of August 1, 2025, to submit a RACT analysis. The affected emission units include any unit that has a potential of emitting NOx or VOC pollutants equal to, or greater than, five tons per year. Sources that have submitted a RACT determination meeting the requirements of Section 120, within the past 36 months, may submit a copy of the prior determination if there have been no changes to available control technologies, technical feasibility, control effectiveness, cost-effectiveness, or environmental, energy, and other impacts since the original determination.

A copy of the RACT analysis submitted by MGM is included in the "Attachments" section of this document. This analysis has been reviewed by DES and concluded that the RACT analysis is acceptable. MGM did not include requirements from AQR 103 as MGM is not applicable to that regulation as it applies to manufacturers of metal or plastic parts or components. In addition, MGM proposed making the spray booths insignificant, based on historical usage.

ATC issued May 19, 2025

During source review of the draft permit, the permittee requested to incorporate the new fire pump (EU: LX057) from the ATC issued on May 19, 2025.

Prior Notification – October 7, 2025

The source submitted a prior notification for to replace a 0.3325 spa heater (NY: 47) with a like in kind replacement.

Minor Revision Application – October 7, 2025

- Remove two 1.35 MMBtu/hr natural gas-fired boilers from Bellagio (EUs: BE157 and BE160).
- Add twelve 0.199 MMBtu/hr natural gas-fired water heaters to Bellagio. Total heat input (2.39 MMBtu/hr) added to EU: BE193.

The application also requested to replace a 270 hp diesel-powered fire pump (EU: EX011) with a 274 hp fire pump at the Excalibur Hotel. Due to the fact EU: EX011 is not subject to the same federal regulation as the new fire pump (40 CFR Part 63, Subpart ZZZZ versus 40 CFR Part 60, Subpart IIII), the replacement cannot be classified as a like-in-kind replacement. Therefore, a separate ATC permit will be issued for the new fire pump in accordance with AQR 12.4.1.1(a)(4), as requested by the source.

Minor Revision Application – October 22, 2025

This application requested to reclassify the spray booth located at the Luxor Hotel (EU: LX022) as an insignificant activity. As explained in the summary for the July 29, 2025, minor revision application, above, the reclassification of the spray booth is permissible in accordance with DAQ Policy PER-021 *Ancillary Surface Coating Operations*. The source PTE has been revised accordingly.

AQR Section 121

The requirements of AQR 121.11 are applicable to the source. Conditions were added to the Part 70 OP to incorporate these requirements. Some of the AQR Section 121 requirements were already required by the Part 70 OP. In those cases, AQR 121.11 citations were added to identify these conditions.

III. EMISSIONS INFORMATION

A. EMISSION UNIT LIST

Table III-A-1 lists the new emission units for this Part 70 OP significant revision.

Table III-A-1: New and Modified Emission Units

EU	Rating	Description	Manufacturer	Model No.	Serial No.	SCC
MB145[N]	1.795 MMBtu/hr	Natural Gas-Fired Boiler	Lochinvar	CWN1797PM	TBD	10300603
MB146[N]	1.795 MMBtu/hr	Natural Gas-Fired Boiler	Lochinvar	CWN1797PM	TBD	10300603
MB147[N]	4.999 MMBtu/hr	Natural Gas-Fired Boiler	Camus	Dynaflame DFNH-5004	TBD	10300603
MB148[N]	4.999 MMBtu/hr	Natural Gas-Fired Boiler	Camus	Dynaflame DFNH-5004	TBD	10300603
BE193[M]	0.199 MMBtu/hr	Natural Gas-Fired Water Heaters (36)	Navien	NPE-240S2(NG)	TBD	10300603
NY47[1]	0.3325 MMBtu/hr	Spa Heater	Raypak	B-R336A	TBD	10300603
LX057[2]		Fire Pump	Clarke	C18H0	TBD	20100102
	755 hp	Diesel Engine; DOM: Post 2005	Caterpillar	C18H0-UFAC10	TBD	

Note: 'N' and 'M' superscripts denote new and modified emission units
[1]Like-kind replacement
[2]Unit originally permitted in the ATC issued on May 19, 2025.

B. APPLICABILITY EMISSIONS

Permitting applicability is determined by calculating the emissions for all proposed emission units using 8,760 hours of operation (except for emergency generators or fire pumps, which use 500 hours), any inherent controls, any inherent throughput limitations, and the emission factors provided by the manufacturer, by source test results, by EPA AP-42, or by other approved methods. As a categorical source, fugitive emissions are required to be included with applicability calculations.

Table III-B-1: Applicability Emissions Evaluation (tons per year)

Pollutant	PM_{10}	$PM_{2.5}$	NO_X	CO	SO_2	VOC	H_2S	Pb	HAP	GHG[1]
Applicability Thresholds	5	5	5	25	25	5	1	0.3		
Major Source Thresholds (Categorical Source)	100	100	100	100	100	100	n/a	100	10/25[2]	
Major Source Thresholds (Serious Nonattainment Area)			50			50				
Applicability Emissions Total	85.19	81.31	792.41	358.03	3.99	76.21	0	0	22.32	592,367.60

[1]In units of CO_2e
[2]10 tons for a single HAP or 25 tons for any combination of HAP compounds.

As Table III-B-1 shows, Applicability Emissions are above permitting thresholds for a majority of pollutants.

C. SOURCE-WIDE PTE

Table III-C-1: Source-wide PTE (tons per year)

Property Name	PM_{10}	$PM_{2.5}$	NO_x	CO	SO_2	VOC	HAP	GHG[1]
MGM Grand	12.06	12.06	131.06	51.75	0.57	8.92	1.31	583,675.57
New York -- New York	1.39	1.39	34.08	10.32	0.10	1.27	0.16	
Park MGM	6.58	6.58	37.90	23.19	0.17	2.22	0.47	
Signature	2.38	2.38	35.03	16.70	0.15	1.40	0.31	
Mandalay Bay	12.21	12.21	106.34	62.89	0.74	8.44	1.89	
Four Seasons	0.18	0.18	0.68	1.22	0.03	0.12	0.05	
Luxor	5.37	5.37	70.12	32.45	0.25	3.72	0.92	
Excalibur	4.22	4.22	58.37	25.92	0.28	3.16	0.61	
Bellagio	11.64	11.11	164.21	74.64	0.65	9.71	3.13	
City Center	15.64	15.64	100.73	31.09	0.65	6.15	1.55	
T-Mobile Arena	0.08	0.08	10.83	0.85	0.01	0.20	0.03	
Cosmopolitan	11.19	8.23	35.25	20.44	0.34	3.17	0.93	
Total PTE	**82.94**	**79.45**	**784.60**	**351.46**	**3.94**	**48.64**	**11.36**	**583,675.57**

[1]In units of CO_2e

As Table III-C-1 shows, NO_x, CO, and VOC PTE are above major source thresholds which qualifies this source as a major source for NO_x, and CO, an SM80 source for VOC, and a minor source for all other regulated pollutants. Calculations are included as an attachment.

Table III-C-2: Emissions Increase (tons per year)

Description	PM_{10}	$PM_{2.5}$	NO_X	CO	SO_2	VOC	HAP	GHG[1]
Current Permitting Action	82.94	79.45	784.60	351.46	3.94	48.64	11.36	583,675.57
Minor Revision Issued 02/12/2025	82.74	79.25	784.83	350.03	3.95	75.61	21.61	578,164.37
Difference	0.20	0.20	-0.23	1.43	-0.01	-26.97	-10.25	5,511.20
Net Emissions Increase	0.20	0.20	0	1.55	0.01	0	0	5,511.20
AQR 12.5.1(d) Minor NSR Significance Levels	7.5	5.0	20	50	20	20		
AQR 12.2.2(uu) Significance Thresholds	15	10	40	100	40	40	10	
RACT/BACT Analysis Required	No	No	No	No	No	No	No	No

[1]In units of CO_2e

As shown in Table III-C-2, the source-wide emission increases are below the minor NSR significance thresholds. Therefore, a RACT analysis is not required. The decrease in VOC PTE is due to the reclassification of the spray booths as insignificant activities.

D. OPERATIONAL LIMITS

All operational limitations identified in previous permitting actions remain enforceable.

E. CONTROL TECHNOLOGY

The permittee proposed the following:

1. Only natural gas shall be combusted in each boiler (EUs: MB145 – MB148).

2. Each boiler shall be operated and maintained in accordance with the manufacturer's operations and maintenance instructions (EUs: MB145 – MB148).
3. Each boiler shall be operated with burners that have a manufacturer's maximum emission concentration of 20 parts per million (ppm) NO_x, corrected to 3 percent oxygen (EUs: MB145 and MB146).
4. Each boiler shall be operated with burners that have a manufacturer's maximum emission concentration of 9 parts per million (ppm) NO_x, corrected to 3 percent oxygen (EUs: MB147 and MB148).
5. Each boiler shall be operated with burners that have a manufacturer's maximum emission concentration of 50 ppm CO, corrected to 3 percent oxygen (EUs: MB147 and MB148).

All other monitoring requirements established with previous permitting actions remain enforceable.

F. MONITORING

Compliance with permit requirements shall be met through the following:

A burner efficiency test shall be conducted once each calendar year (EUs: MB147 and MB148).

All other monitoring requirements established with previous permitting actions remain enforceable.

G. PERFORMANCE TESTING

There are no additional testing requirements associated with this permitting action. All performance testing requirements established with previous permitting actions remain enforceable.

IV. REGULATORY REVIEW

A. LOCAL REGULATORY REQUIREMENTS

There are no additional local regulatory requirements associated with this permitting action. All requirements established with previous permits remain applicable.

B. FEDERALLY APPLICABLE REGULATIONS

There are no additional applicable federal regulations associated with this permitting action. All requirements established with previous permits remain applicable.

V. COMPLIANCE

The permittee is required to monitor and keep records for all limitations specified in the permit.

VI. EMISSION REDUCTION CREDITS (OFFSETS)

The source is not subject to offset requirements.

VII. MODELING

MGM Resorts International is a major source in Hydrographic Area 212 (the Las Vegas Valley). Permitted emission units include boilers, generators, cooling towers for the operation of 11 facilities. Since minor source baseline dates for NO_x (October 21, 1988) and SO_2 (June 29, 1979) have been triggered, Prevention of Significant Deterioration (PSD) increment analysis is required.

DAQ modeled the source using AERMOD to track the increment consumption. Average actual emissions (2023-2024) were used in the NO_X modeling. Stack data submitted by the applicant was supplemented with information available for similar emission units. Five years (2011 to 2015) of meteorological data from the McCarran Station were used in the model. U.S. Geological Survey National Elevation Dataset terrain data were used to calculate elevations. Table VII-1 shows the location of the maximum impact and the potential PSD increment consumed by the source at that location. The impacts are below the PSD increment limits.

Table VII-1: PSD Increment Consumption

Pollutant	Averaging Period	Source's PSD Increment Consumption (µg/m³)	Location of Maximum Impact	
			UTM X (m)	UTM Y (m)
SO_2	3-hour	6.11[1]	664440	3996573
SO_2	24-hour	2.54[1]	664438	3996654
SO_2	Annual	1.20	664438	3996654
NO_X	Annual	4.90	664849	3997357

[1] Highest Second High Concentration.

VIII. PERMIT SHIELD

The permittee did not request a permit shield.

IX. PUBLIC PARTICIPATION

This permitting action is for a significant revision to an AQR 12.5 operating permit. As a result, public participation is required in accordance with AQR 12.5.2.17.

X. ATTACHMENTS

X-1. Source PTE Summary (tons per year)

Property Name	PM_{10}	$PM_{2.5}$	NO_x	CO	SO_2	VOC	HAP	GHG[1]
MGM Grand	12.06	12.06	131.06	51.75	0.57	8.92	1.31	583,675.57
New York -- New York	1.39	1.39	34.08	10.32	0.10	1.27	0.16	
Park MGM	6.58	6.58	37.90	23.19	0.17	2.22	0.47	
Signature	2.38	2.38	35.03	16.70	0.15	1.40	0.31	
Mandalay Bay	12.21	12.21	106.34	62.89	0.74	8.44	1.89	
Four Seasons	0.18	0.18	0.68	1.22	0.03	0.12	0.05	
Luxor	5.37	5.37	70.12	32.45	0.25	3.72	0.92	
Excalibur	4.22	4.22	58.37	25.92	0.28	3.32	0.61	
Bellagio	11.64	11.11	164.21	74.64	0.65	9.71	3.13	
City Center	15.64	15.64	100.73	31.09	0.65	6.15	1.55	

Property Name	PM_{10}	$PM_{2.5}$	NO_x	CO	SO_2	VOC	HAP	GHG[1]
T-Mobile Arena	0.08	0.08	10.83	0.85	0.01	0.20	0.03	
Cosmopolitan	11.19	8.23	35.25	20.44	0.34	3.17	0.93	
Total PTE	**82.94**	**79.45**	**784.60**	**351.46**	**3.94**	**48.64**	**11.36**	**583,675.57**

[1]In units of CO_2e

X-2. Source Applicability Summary (tons per year)

Property Name	PM_{10}	$PM_{2.5}$	NO_x	CO	SO_2	VOC	HAP
MGM Grand	12.06	12.06	131.06	51.75	0.57	8.92	1.31
NY - NY	1.39	1.39	34.08	10.32	0.10	1.27	0.16
Park MGM	6.58	6.58	37.90	23.19	0.17	2.22	0.47
Signature	2.38	2.38	35.03	16.70	0.15	1.40	0.31
Mandalay Bay	12.21	12.21	106.34	62.89	0.74	8.44	1.89
Four Seasons	0.18	0.18	0.68	1.22	0.03	0.12	0.05
Luxor	5.37	5.37	70.12	32.45	0.25	3.72	0.92
Excalibur	4.22	4.22	58.37	25.92	0.28	3.32	0.61
Bellagio	11.64	11.11	164.21	74.64	0.65	9.71	3.13
City Center	15.64	15.64	100.73	31.09	0.65	6.15	1.55
T-Mobile Arena	0.08	0.08	10.83	0.85	0.01	0.20	0.03
Cosmopolitan	11.19	8.23	35.25	20.44	0.34	3.17	0.93
IA	2.25	1.86	7.81	6.57	0.05	27.57	10.96
Total	**85.19**	**81.31**	**792.41**	**358.03**	**3.99**	**76.21**	**22.32**

X-3. PTE and Applicability Emissions for New Natural Gas-Fired Boilers

				Emission	Potential Emissions		
EU#:	MB145, MB146			Factor	lb/hr	lb/day	ton/yr
Make:	Lochinvar		**PM10**	0.0075	0.01	0.32	0.06
Model:	CWN1797PM		**PM2.5**	0.0075	0.01	0.32	0.06
S/N:	TBD		**NOx**	0.0243	0.04	1.05	0.19
1.795	mmBtu/hr		**CO**	0.0824	0.15	3.55	0.65
24.0	hr/day		**SO_2**	6.00E-04	0.01	0.03	0.01
8760	hr/yr		**VOC**	0.0054	0.01	0.23	0.04
			HAP	1.90E-03	0.01	0.08	0.01
Concetrations:		**%O2**	**Lead**	4.90E-07	8.80E-07	2.11E-05	3.85E-06
20	ppm NOx	3.0					
	ppm CO	3.0					
Fuel:	Natural Gas						

X-4. PTE and Applicability Emissions for New Natural Gas-Fired Boilers

				Emission Factor (lb/mmBtu)	PTE (per unit)		
EU#:	MB147, MB148				lb/hr	lb/day	ton/yr
Make:	Camus						
Model:	DybaFlame DFNH5004		**PM10**	0.0075	0.04	0.90	0.16
S/N:	See OP & TSD		**PM2.5**	0.0075	0.04	0.90	0.16
			NOx	0.0109	0.05	1.31	0.24
4.99	mmBtu/hr		**CO**	0.0370	0.18	4.43	0.81
24.0	hr/day		**SO_2**	6.00E-04	0.01	0.07	0.01
8760	hr/yr		**VOC**	0.0054	0.03	0.65	0.12
			HAP	1.90E-03	0.01	0.23	0.04
Concetrations:		**%O2**	**Lead**	4.90E-07	2.45E-06	5.87E-05	1.07E-05
9	ppm NOx	3.0					
50	ppm CO	3.0					
Fuel:	Natural Gas	2					

X-5. PTE and Applicability Emissions for Revised Heat Input Ratings for Consolidated Natural Gas-fired Water Heaters <1.0 MMBtu/hr

				Emission Factor (lb/mmBtu)	Potential Emissions		
EU#:	BE193				lb/hr	lb/day	ton/yr
Make:	Various						
Model:	Various		**PM10**	0.0075	0.15	3.61	0.66
S/N:	Various		**PM2.5**	0.0075	0.15	3.61	0.66
			NOx	0.0980	1.96	47.13	8.60
20.04	mmBtu/hr *		**CO**	0.0824	1.65	39.63	7.23
24.0	hr/day		**SO_2**	6.00E-04	0.01	0.29	0.05
8760	hr/yr		**VOC**	0.0054	0.11	2.60	0.47
			HAP	1.90E-03	0.04	0.91	0.17
Concetrations:		**%O2**	**Lead**	4.90E-07	9.82E-06	2.36E-04	4.30E-05
	ppm NOx	3.0					
	ppm CO	3.0					
			*Cumulative total for all boilers <1.0 MMBtu + 10%				
Fuel:	Natural Gas						

Greenhouse Gas Calculations

Greenhouse gases (GHG) are a group of compounds that act to trap heat in the atmosphere making the Earth's surface warmer than it would be, otherwise. The EPA has identified carbon dioxide, methane, nitrous oxide, and fluorinated gases as the primary GHG compounds. Total source GHG emissions, represented as CO_2e, are calculated by applying a global warming potential (GWP) factor to each GHG compound. The GWP is an equalization factor which compares the heat-trapping capacity of each GHG compound to an equal mass of CO_2.

X-6. GHG Summary for New Boilers

EU	Rating (MMBtu)	GHG (tons/yr)
MB145 & MB146	1.795 (each)	9,418.42
MB147 & MB148	4.999 (each)	

X-7. Source-Wide GHG PTE

Total GHG From Permit Issued 05/19/2025	578,181.49
GHG Added (Table X-5)	9,418.42
GHG Removed (EUs: MB043, MB057, BE154, BE158, BE159)	3,924.34
Total	**583,675.57**

X-8. GHG from Insignificant Boilers

Property	Rating (MMBtu)[1]	GHG (tons/yr)
MGM	0.3	138.51
NY NY	1.0	504.78
Park MGM	0.5	230.84
Mandalay	3.0	1533.83
4 Seasons	0.9	461.69
Excalibur	2.38	913.11
Bellagio	6.62	3395.96
Cosmopolitan	2.95	1513.31
Total		**8692.03**

[1]Ratings represent the cumulative total for all insignificant units for each property.

GHG Applicability = 583,675.57 (Table X-5) + 8,692.03 (Table X-6) = 592,367.60 ton/yr

X-9. PTE for Emission Units Removed from the Operating Permit

EU	Description	PM_{10}	$PM_{2.5}$	NO_x	CO	SO_2	VOC	HAP
BE154	Boiler	0.04	0.04	0.14	0.49	0.01	0.03	0.01
BE158	Boiler	0.04	0.04	0.14	0.49	0.01	0.03	0.01
BE159	Boiler	0.04	0.04	0.14	0.49	0.01	0.03	0.01
MB043	Boiler	0.06	0.06	0.38	0.65	0.01	0.04	0.01
MB057	Boiler	0.06	0.06	0.27	0.28	0.01	0.04	0.01
MG29	Spray Booth	0	0	0	0	0	1.20	0.56
MG39	Spray Booth	0	0	0	0	0	6.84	3.21
MG40	Spray Booth	0	0	0	0	0	2.05	0.96
MB087	Spray Booth	0	0	0	0	0	4.97	0.99
MB104	Spray Booth	0	0	0	0	0	1.95	0.92
MB105	Spray Booth	0	0	0	0	0	0.22	0.10
FS005	Spray Booth	0	0	0	0	0	3.80	0.57
LX022	Spray Booth	0	0	0	0	0	0.82	0.45
BE96	Spray Booth	0	0	0	0	0	2.45	1.15

EU	Description	PM_{10}	$PM_{2.5}$	NO_x	CO	SO_2	VOC	HAP
BE97	Spray Booth	0	0	0	0	0	2.45	1.15
BE98	Spray Booth	0	0	0	0	0	0.37	0.17
Total		**0.24**	**0.24**	**1.07**	**2.40**	**0.05**	**27.29**	**10.28**

RACT ANALYSIS

A RACT evaluation consists of a technical and economic feasibility analysis for implementation of either passive or active methods for reducing emissions. Various options, including control devices and process changes are evaluated to determine their technical feasibility. Those that are deemed technically feasible are evaluated to determine their economic feasibility, which is based on the cost effectiveness of the reduction technique in terms of the cost per ton of pollutant controlled. The cost is the sum of the annualized capital cost and the annual operating cost. Those that exceed a certain threshold are deemed economically infeasible. The technically and economically feasible option that results in the largest decrease in emissions is deemed RACT. MGMRI believes the controls associated with the current level of NOx emissions from the emergency engines and the current level of VOC from the spray booth are considered RACT and no additional control technology is technically or economically feasible.

MGMRI has evaluated RACT for all applicable diesel-fired emergency engines and the spray booth at the MGMRI Hotels by determining what process changes and add-on emission controls are technically feasible for this specific type of equipment. Potential emission reduction measures were determined by a review of EPA's RACT/Best Available Control Technology (BACT)/Lowest Achievable Emission Rate (LAER) Clearinghouse (RBLC). The following sections provide details on the assessment methodology utilized in the RACT analysis for the affected emission units.

Characterization of Process Equipment

The cost and efficiency of NOx reduction technology is dependent on the nature of the equipment in which the control device will be installed. Thus, it is important to classify the process equipment properly for the purposes of determining RACT. The process equipment consists of 49 diesel-fired emergency engines with ratings approximately between 1,100 and 3,700 horsepower (hp) and one spray booth with an annual permitted throughput of 2,000 gallons of paint strippers, paints, basecoats, primers, reducers, thinners, solvents, etc., with a weighted average VOC content of 6.84 pounds per gallon (lb/gal). Therefore, the engines are classified as Large Internal Combustion Engines (> 500 hp) and the paint booth as miscellaneous metal parts and products surface coating and plastic parts and products surface coating for purposes of the RBLC.

Identification of Potential Control Technologies

Available NOx and VOC control technologies are identified for each emission unit in question. The following methods are used to identify potential technologies: (1) researching the RBLC database; (2) surveying regulatory agencies; (3) drawing from previous

engineering experience; (4) surveying air pollution control equipment vendors; and (5) surveying available literature.

RACT/BACT/LAER Clearinghouse (RBLC)

The RBLC, a database made available to the public through the U.S. EPA's Office of Air Quality Planning and Standards (OAQPS) Technology Transfer Network (TTN), lists technologies and corresponding emission limits that have been approved by regulatory agencies in permit actions. These technologies are grouped into categories by industry and can be referenced in determining what emissions levels were proposed for similar types of emission units.

MGMRI performed searches of the RBLC in May of 2025 to identify the emission control technologies and emission levels that were determined by permitting authorities as RACT, BACT, or LAER. Searches were performed for determinations within the past ten (10) years for emission sources comparable to those at MGMRI Hotels. The following categories were searched:

1. Large Internal Combustion Engines (> 500 hp)
   - Fuel Oil (ASTM #1,2, includes kerosene, aviation, diesel fuel) (RBLC Code 17.110)
2. Miscellaneous metal parts and products surface coating and plastic parts and products surface coating (except 41.015)
   - RBLC Codes 41.013 and 41.016

The following control technologies are technologically feasible based on the RBLC database search results.

1. For diesel-fired emergency engines,
   - Use of GCP
   - EPA Tier Certification
2. For surface coating operations (spray booth)
   - Maximum VOC content of coating material.

Technically Feasible Options for Diesel-Fired Emergency Engines

EPA Tier Certification

Certain emergency engines, based on date of manufacture and construction, are certified to comply with EPA Tier Emission Standards as outlined in 40 CFR Part 60 Subpart IIII for stationary CI internal combustion emergency engines or stationary fire pump engines, per the maximum engine power and model year.

Good Combustion Practices

The use of GCP at the Facility includes operating diesel-fired emergency engines to obtain a good air/fuel mixture in the combustion zone by maintaining overall excess oxygen levels high enough to complete combustion while maximizing thermal efficiency and by providing sufficient residence time to complete combustion. GCP also includes operating the equipment in accordance with the manufacturer's recommended settings and

preventative maintenance schedules. Following good combustion practices is in the interest of engine operators from an efficiency and reliability perspective.

Technical Feasibility Determination - Diesel-Fired Emergency Engines

The Facility's diesel-fired emergency engines are assumed to use GCP as they are maintained and operated in accordance with manufacturer specifications. Additionally, applicable emission units (EUs: LX024, LX025, TM0l, CC007, CC008, and CC009) are subject to and comply with 40 CFR Part 60 Subpart IIII requirements, including emission standards per the maximum engine power and model year, for stationary CI internal combustion emergency engines. The use of GCP is technically feasible and has been demonstrated in practice for all applicable emergency engines at the Facility.

Additionally, in its 2010 MACT (Maximum Achievable Control Technology) /GACT (Generally Available Control Technology) evaluation for RICE (Reciprocating Internal Combustion Engines), EPA concluded for emergency RICE: "Because these engines are typically used only a few number of hours per year, the costs of emission control are not warranted when compared to the emission reductions that would be achieved." Based on EPA's assessment and the fact that the RBLC contains no records of add on controls (i.e., SCR) installation on emergency-use RICE, add on controls are eliminated from consideration as RACT.

Furthermore, MGMRI reviewed the current RACT requirements for emergency engines in other agency jurisdictions. For example, San Joaquin Valley Air Pollution Control District (SJVAPCD) Rule 4702 limits emissions of NOx from internal combustion engines greater than 25 brake horsepower (BHP). Pursuant to SJVAPCD Rule 4702 Section 4.2, emergency engines comply with the Rule by:

1. Limiting annual operation and only operating for specific purposes (e.g., testing, maintenance, and emergency purposes);
2. Utilizing a non-resettable hour meter;
3. Operating and maintaining the engine as recommended by the engine manufacturer; and
4. Maintaining records of operation.

Similarly, South Coast Air Quality Management District (SCAQMD) Rule 1110-2 limits NOx emissions from engines. Per Subsection (i) of that Rule, emergency engines are not subject to the emission standards of the Rule (and associated requirements). MGMRI concludes that the current Permit requirements for the Facility's diesel-fired emergency engines are consistent with the RACT prohibitory requirements of other jurisdictions, such as SJVAPCD and SCAMQD. As such, the installation of add on controls or implementation of additional emission standards is eliminated from consideration as RACT.

Selection of NOx RACT for the Diesel-Fired Emergency Engines

The Facility's diesel-fired emergency engines use GCP as they are maintained and operated in accordance with manufacturer specifications. EUs LX024, LX025, TM01, CC007, CC008, and CC009 are certified to comply with the applicable emission standards as outlined in 40 CFR Part 60 Subpart IIII for stationary CI internal combustion emergency engine, per the maximum engine

power and model year. As discussed previously, the installation of add-on controls to the existing emergency engines is not feasible per EPA and other agencies' RACT prohibitory rules (e.g., SCAQMD and SJVAPCD) do not require compliance with specific NOx emission standards for emergency engines. Therefore, the use of GCP is technically feasible and is selected as meeting RACT for the diesel-fired emergency engines. Additionality, compliance with applicable 40 CFR Part 60 Subpart IIII requirements, such as emission standards, will be selected as RACT for EUs subject to this regulation (EUs: LX024, LX025, TM01, CC007, CC008, and CC009).

MGMRI intends to maintain the current emission limits for NOx as contained in the Permit for each of the affected diesel emergency engines. MGMRI will utilize the existing Permit conditions to monitor compliance with the NOx emission limits contained in the Permit.

Technical Feasible Options for the Surface Coating Operations (Spray Booth)

Maximum VOC Content

VOCs are emitted from surface coating operations due to the volatilization of VOCs from VOC containing aerosols during transfer to the coated material. The emissions occur within a spray booth with an induced draft to direct the aerosolized particles to a dust collector. While the dust collector removes particulates, there is no post emissions control for VOC. Therefore, emissions of VOC can be most readily controlled by limiting the VOC content in the coating materials (paints, paint thinners, solvents etc.). Clark County issued CTG RACT requirements (CCAQR Section 103) for surface coating operations and while it was determined that MGMRI is not subject to the rule, the control technologies listed in the rule included maximum VOC content restrictions.

Technical Feasibility Determination- Surface Coating Operations (Spray Booth)

The potential control for the surface coating operations from the RBLC review is listed below:

1. Maximum VOC content of paints, paint thinners, solvent, etc.

The applicable paint booth at the MGMRI Hotels has an annual throughput of 2,000 gallons of paint strippers, paints, basecoats, primers, reducers, thinners, solvents, etc., with a weighted average VOC content of 6.84 lb/gal per Condition 1.1.3.1.4 of the Permit. Therefore, it is assumed that limiting the weighted average VOC content to 6.84 lb/gal will be implemented for the spray booth regardless of other emission controls. As limiting the VOC content of the coating material is the only technically feasible option, no further control technology review or cost analysis is needed.

The RBLC review showed BACT determinations for PSD sites with 99.99 ton per year emissions of VOC using maximum VOC content (6.5 lb/gal) as the control. While MG39 is limited to a weighted average VOC content of 6.84 lb/gal, which is slightly higher than the BACT-PSD determination value, MG39 has a total potential emission rate of only 6.84 tpy. As the overall emissions are significantly lower than the comparable facilities and are not expected to increase significantly, MGMRI has determined that continuing to limit the weighted average VOC content to 6.84 lb/gal satisfies RACT.

Selection of VOC RACT for the Surface Coating Operations (Spray Booth)

The result of the RACT analysis shows that limiting the weighted average VOC content of the surface coating materials to 6.84 lb/gal satisfies RACT for the spray booth.

MGMRI intends to maintain the current emission limits for VOC as contained in the Permit for MG39. MGMRI will utilize the existing Permit conditions to monitor compliance with the VOC emission limits contained in the Permit.