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:
Minor Revision

Application Received: November 14, 2024

SUBMITTED BY:
Trinity Consultants

FOR:
MGM Resorts International
Source: 00825

LOCATION:
3730 South Las Vegas Boulevard
Las Vegas, Nevada 89158

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: February 12, 2025

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. HA 212 was designated a moderate nonattainment area for ozone on January 5, 2023, for the 2015 ozone National Ambient Air Quality Standards (NAAQS). The designation did not impose any new requirements at that time. HA 212 was designated a serious nonattainment area for ozone on January 21, 2025. Clark County has drafted or imposed new requirements to address this designation.

MGMRI is permitted under the New Source Review (NSR) regulations as a Prevention of Significant Deterioration (PSD) major stationary source of NO_x and CO, 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 and surface coating 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	84.46	80.97	802.03	375.90	4.06	76.89	22.03	0	0	605,686.05
Major Source Thresholds (Title V/Categorical)	100	100	100	100	100	100	10/25[2]			75,000

[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 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
Avgas	aviation gasoline
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
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. PERMITTING HISTORY

May 19, 2022: Renewal permit issued.

July 6, 2023: Minor revision permit issued consisting of the addition and removal of miscellaneous boilers at the MGM, Excalibur, and Mandalay Bay hotels as well as updating serial numbers for previously permitted boilers.

March 25, 2024: Significant revision permit issued consisting of several applications:

- March 30, 2023: Minor revision to remove three boilers from Mandalay Bay and two boilers from Bellagio and the addition of six boilers at Mandalay Bay and four boilers at Bellagio.
- March 30, 2023: Significant revision to incorporate all emission units from the Cosmopolitan Hotel into the MGM operating permit.
- July 27, 2023: Administrative revision to update serial numbers for boilers located at Mandalay Bay and Luxor.
- October 25, 2023: Minor revision to remove nine boilers at Mandalay Bay and five boilers from Luxor, and add five boilers at Mandalay Bay.
- October 25, 2023: Prior notification to remove one boiler from Bellagio and one boiler from Excalibur to be replaced with identical units at each property.

October 2, 2024: Minor revision permit issued to remove three cooling towers and three natural gas-fired boilers from Bellagio, and one natural gas-fired boiler from Luxor. Also, the addition of three cooling towers and 21 natural gas-fired tankless water heaters, rated below 1.0 MMBtu, at Bellagio, and four natural gas-fired boilers at Luxor.

C. CURRENT PERMITTING ACTION

This is a minor revision to a Title V operating permit that will expire on May 18, 2027. As submitted, the permittee selected the option for an "ATC as part of a Part 70 OP minor revision (AQR 12.4.3.2(e))". In accordance with AQR 12.4.3.2(e)(1), DAQ can issue the permit as a minor revision under AQR 12.5.2.14 due to the fact that the source-wide emissions increase is below the minor NSR significance level for all regulated pollutants. Additionally, the project did not meet any of the preconstruction review applicability criteria listed in AQR 12.4.1.1(a). The permittee requested the following revisions:

- Removal of four natural gas-fired boilers from MGM Hotel: two rated at 32.66 MMBtu/hr (EUs: MG13 and MG14); one rated at 16.33 MMBtu/hr (EU: MG16); and one rated at 20.0 MMBtu/hr (EU: MG53).
- Addition of eight 6.0 MMBtu/hr natural gas-fired boilers at MGM Hotel, to be identified as EUs: MG130 – MG137.

AQR Sections 101 – 107, defined as control technique guidelines, were introduced in April and May of 2024. These guidelines are specific to VOC emissions. MGM Resorts International submitted notification that the source is subject to AQR 102 (Gasoline Dispensing Facilities) and AQR 103 (Metal or Plastic Parts Coating Operations). The operating permit has been updated to include standard conditions for AQR 102. However, it has been determined that MGM is not subject to AQR 103. "Miscellaneous Metal or Plastic Parts Coating Operations", as defined in AQR 103.3, is specific to manufacturing facilities. MGM is not a manufacturing facility. As a result, the source is not subject to AQR 103.

The determination that the source is subject to AQR 102 has no impact on the current permit requirements. Due to the fact the source is subject to 40 CFR Part 63, Subpart CCCCCC, all requirements associated with AQR 102 are included in the operating permit.

Only new emission units are addressed in this document.

III. EMISSIONS INFORMATION

A. EMISSION UNIT LIST

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

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

EU	Rating	Description	Manufacturer	Model No.	Serial No.	SCC
MG130^{N}	6.0 MMBtu/hr	Natural Gas-Fired Boiler	Lochinvar	FCB-6000	2444141193691	10300603
MG131^{N}	6.0 MMBtu/hr	Natural Gas-Fired Boiler	Lochinvar	FCB-6000	2444141193683	10300603
MG132^{N}	6.0 MMBtu/hr	Natural Gas-Fired Boiler	Lochinvar	FCB-6000	2444141193677	10300603
MG133^{N}	6.0 MMBtu/hr	Natural Gas-Fired Boiler	Lochinvar	FCB-6000	2444141193696	10300603
MG134^{N}	6.0 MMBtu/hr	Natural Gas-Fired Boiler	Lochinvar	FCB-6000	2446141369984	10300603
MG135^{N}	6.0 MMBtu/hr	Natural Gas-Fired Boiler	Lochinvar	FCB-6000	2446141370056	10300603
MG136^{N}	6.0 MMBtu/hr	Natural Gas-Fired Boiler	Lochinvar	FCB-6000	2446141328670	10300603

EU	Rating	Description	Manufacturer	Model No.	Serial No.	SCC
MG137[N]	6.0 MMBtu/hr	Natural Gas-Fired Boiler	Lochinvar	FCB-6000	2446141328666	10300603

Note: The 'N' superscripts denote new emission units for this permitting action.

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]	75,000
Applicability Emissions Total	84.99	81.11	792.64	356.60	4.00	76.06	0	0	22.34	586,856.40

[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 major source thresholds for NO_x, CO, and GHG pollutants which qualifies this source as a major source for the aforementioned pollutants. It is a minor source for all other regulated pollutants. Calculations are included as an attachment.

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	12.09	12.09	131.06	51.75	0.57	19.01	6.04	578,164.37
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	11.90	11.90	106.13	60.90	0.72	15.34	3.82	
Four Seasons	0.18	0.18	0.68	1.22	0.03	3.91	0.63	
Luxor	5.46	5.46	72.82	33.30	0.25	4.66	1.37	
Excalibur	4.22	4.22	58.67	25.92	0.28	3.32	0.61	
Bellagio	11.63	11.10	161.65	74.35	0.68	14.96	5.69	
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	**82.74**	**79.25**	**784.83**	**350.03**	**3.95**	**75.61**	**21.61**	**578,164.37**

[1]In units of CO_2e

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	82.74	79.25	784.83	350.03	3.95	75.61	21.61	578,164.37
Minor Revision Issued 03/25/2024	84.46	80.97	802.03	375.90	4.06	76.89	22.03	605,686.05
Difference	-1.72	-1.72	-17.20	-25.87	-0.11	-1.28	-0.42	-27,521.68
Net Emissions Increase	0	0	0	0	0	0	0	0
AQR 12.5.1(d) Minor NSR Significance Levels	7.5	5.0	20	50	20	20		N/A
AQR 12.2.2(uu) Significance Thresholds	15	10	40	100	40	40	10	N/A
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.

D. OPERATIONAL LIMITS

There are no operational limitations associated with this permitting action.

E. CONTROL TECHNOLOGY

The permittee proposed the following:

1. Only natural gas shall be combusted in each boiler (EUs: MG130 – MG137).
2. Each boiler shall be operated and maintained in accordance with the manufacturer's operations and maintenance instructions (EUs: MG130 – MG137).
3. Each boiler shall be operated with burners that have a manufacturer's maximum emission concentration of 13.2 parts per million (ppm) NO_x, corrected to 3 percent oxygen (EUs: MG130 – MG137).
4. Each boiler shall be operated with burners that have a manufacturer's maximum emission concentration of 43.23 ppm CO, corrected to 3 percent oxygen (EUs: MG130 – MG137).

F. MONITORING

Compliance with permit requirements shall be met through the following:

A burner efficiency test shall be conducted once each calendar year (EUs: MG130 – MG137).

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 (2022-2023) were used in the NO_X modeling. Stack data submitted by the applicant were 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/m^3)	Location of Maximum Impact	
			UTM X (m)	UTM Y (m)
SO_2	3-hour	6.11[1]	664440	3996573
SO_2	24-hour	2.53[1]	664438	3996654
SO_2	Annual	1.19	664438	3996654
NO_X	Annual	5.64	664190	3998213

[1] Highest Second High Concentration.

VIII. ENVIRONMENTAL JUSTICE

The environmental justice determination conducted for the permit issued on October 2, 2024, is still valid. A reevaluation is not necessary for this permitting action.

IX. PERMIT SHIELD

The permittee did not request a permit shield.

X. PUBLIC PARTICIPATION

This permitting action is for a minor revision to an AQR 12.5 operating permit. As a result, public participation is not required in accordance with AQR 12.5.2.17.

XI. ATTACHMENTS

X-1. Source PTE Summary

Property Name	PM_{10}	$PM_{2.5}$	NO_x	CO	SO_2	VOC	HAP	GHG[1]
MGM Grand	12.09	12.09	131.06	51.75	0.57	19.01	6.04	578,164.37
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	11.90	11.90	106.13	60.90	0.72	15.34	3.82	
Four Seasons	0.18	0.18	0.68	1.22	0.03	3.91	0.63	
Luxor	5.46	5.46	72.82	33.30	0.25	4.66	1.37	
Excalibur	4.22	4.22	58.67	25.92	0.28	3.32	0.61	
Bellagio	11.63	11.10	161.65	74.35	0.68	14.96	5.69	
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	**82.74**	**79.25**	**784.83**	**350.03**	**3.95**	**75.61**	**21.61**	**578,164.37**

[1]In units of CO_2e

X-2. Source Applicability Summary

Property Name	PM_{10}	$PM_{2.5}$	NO_x	CO	SO_2	VOC	HAP
MGM Grand	12.09	12.09	131.06	51.75	0.57	19.01	6.04
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	11.90	11.90	106.13	60.90	0.72	15.34	3.82
Four Seasons	0.18	0.18	0.68	1.22	0.03	3.91	0.63
Luxor	5.46	5.46	72.82	33.30	0.25	4.66	1.37
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Bellagio	11.63	11.10	161.65	74.35	0.68	14.96	5.69
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
Insignificant Units	2.25	1.86	7.81	6.57	0.05	0.45	0.73
Total	**84.99**	**81.11**	**792.64**	**356.60**	**4.00**	**76.06**	**22.34**

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

EU#:	MG130 - MG137			Emission Factor (lb/mmBtu)	PTE (per unit)		
Make:	Lochinvar				lb/hr	lb/day	ton/yr
Model:	FCB6000		PM10	0.0075	0.05	1.08	0.20
S/N:	TBD		PM2.5	0.0075	0.05	1.08	0.20
			NOx	0.0160	0.10	2.30	0.42
6.00	mmBtu/hr		CO	0.0320	0.19	4.61	0.84
24.0	hr/day		SO_2	6.00E-04	0.01	0.09	0.02
8760	hr/yr		VOC	0.0054	0.03	0.78	0.14
			HAP	1.90E-03	0.01	0.27	0.05
Concetrations:		%O2	Lead	4.90E-07	2.94E-06	7.06E-05	1.29E-05
13.2	ppm NOx	3.0					
43.23	ppm CO	3.0					
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-4. GHG Summary for New Boilers

EU	Rating (MMBtu)	GHG (tons/yr)
MG130 – MG137	6.0 (each)	24,623.31

X-5. Source-Wide GHG PTE

Total GHG From Permit Issued 10/02/2024	605,957.94
GHG (Added EUs)	24,623.31
GHG (Removed EUs)	52,144.99
Total	**578,164.37**

X-6. 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

Property	Rating (MMBtu)[1]	GHG (tons/yr)
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 = 578,164.37 (Table X-5) + 8,692.03 (Table X-6) = 586,856.40 ton/yr