AIR COMPLIANCE ANALYSIS SUMMARY SHEET

COMPANY/FACILITY:	Luck Stone Corporation-Luck Edgefield		
LOCATION (COUNTY):	Clarks Hill (McCormick/Edgefield)	**DATE:**	4/26/24
PERMIT NUMBER:	0980-0052	**REVIEWED BY:**	VMG

REQUEST:	Y	**CONSTRUCTION PERMIT**		**STATE PERMIT**
		OPERATING PERMIT – NEW		**CONDITIONAL MAJOR**
		OPERATING PERMIT – RENEWAL		**GENERAL CM**
		PERMIT - MODIFICATION		**TITLE V PERMIT**
		AIR COMPLIANCE DEMO		**PSD MAJOR**
ANALYSIS:	Y	**AMBIENT AIR QUALITY STANDARDS**		**PSD INCREMENT**
		TOXIC AIR POLLUTANTS		**DE MINIMIS**
	Y	**EXEMPTION**		**DEFERRAL**
OTHER:		**EXPEDITED**	N	**COLLOCATED (Y or N)**

PROJECT DESCRIPTION: The Bureau received a Synthetic Minor Permit Application on March 27, 2024. The facility has submitted a request to construct an aggregate mine and processing facility near the border of McCormick and Edgefield Counties.

SUMMARY OF ANALYSIS & RESULTS: GEL Engineering LLC submitted a modeling analysis on behalf of the facility. The facility will be located adjacent to the Forest Service U.S. Department of Agriculture Sumter Long Cane Ranger District, which is a part of the Sumter National Forest. However, this area is not on the U.S. Forest Service Class I Wilderness Areas List, and this is not a Prevention of Significant Deterioration (PSD) permit application.

Standard 2: PM_{10} and $PM_{2.5}$ emissions from each individual emission point ID for the Drilling and Material Handling area are less than 1.14 lb/hr and could be considered exempt from modeling. However, since PM_{10} emissions from the group of mining and material handling process sources (emission points V1 through V34) are greater than the exemption rate, the facility chose to model them with AERMOD to demonstrate compliance with Standard 2. The Bureau also modeled $PM_{2.5}$ from this same group of sources to demonstrate compliance. In addition to the receptors provided by the facility, the Bureau added 146 receptors to the north, south, east, and west of the site at various distances. This was done conservatively to gather additional data regarding the concentrations of PM_{10} and $PM_{2.5}$ that could occur in the area. The maximum concentrations for both PM_{10} and $PM_{2.5}$ using the conservative receptor grid are shown in the table below. The facility and the Bureau have also conservatively reported the first-high (instead of the sixth-high) concentration over five years of met data. PM_{10} and $PM_{2.5}$ emissions from other sources (roads and storage piles) are exempt from modeling.

Standard 7: Since this is not a PSD project, no Standard 7 analysis is required. In addition, Edgefield County does not currently have any minor source baseline dates.

Standard 8: The only toxic air pollutant emissions included in the application are from the 550-kW diesel-fired generator. However, the generator is classified as a portable, “non-road” engine and will be in operation at the facility for less than 12 (twelve) months. Therefore, it is exempt.

This is the initial compliance summary for this facility.

STANDARD NO. 2 - AMBIENT AIR QUALITY STANDARDS ANALYSIS							
Pollutant	**Averaging Time**	**Basis**	**Maximum Concentration (μg/m³)**	**Background Concentration (μg/m³)**	**Total (μg/m³)**	**Standard (μg/m³)**	**% of Standard**
PM_{10}	24-Hour	AERMOD	35.1(1)	36	71	150	47
$PM_{2.5}$	24-Hour	AERMOD	2.9(2)	14.1	17	35	49
	Annual	AERMOD	0.5(3)	7.1	8	12	67
1) The facility and the Bureau conservatively reported the first-high over five years of met data.							
2) The five-year average of the eighth-high concentrations.							
3) The five-year average of the maximum annual concentrations.							

BACKGROUND MONITORING DATA (μg/m³)									
Pollutant	**Site Name**	**County**	**Year**	**1-Hr**	**3-Hr**	**8-Hr**	**24-Hr**	**3-Mo**	**Annual**
PM_{10}	Cayce City Hall	Lexington	20-22				36		
$PM_{2.5}$	Trenton	Edgefield	20-22				14.1		7.1
PM_{10} 24-hr is the fourth-high over a 3-year period.									

STANDARD NO. 2 – AMBIENT AIR QUALITY STANDARDS EMISSION RATES (LB/HR)						
Emission Point ID	**PM_{10}**	**$PM_{2.5}$**	**SO_2**	**NO_x**	**CO**	**Lead**
V1	0.270	0.050	--	--	--	--
V2	0.370	0.025	--	--	--	--
V3	0.023	0.007	--	--	--	--
V4	0.270	0.050	--	--	--	--
V5	0.370	0.025	--	--	--	--
V6	0.023	0.007	--	--	--	--
V7	0.023	0.007	--	--	--	--
V8	0.270	0.050	--	--	--	--
V9	0.370	0.025	--	--	--	--
V10	0.023	0.007	--	--	--	--
V11	0.023	0.007	--	--	--	--
V12	0.023	0.007	--	--	--	--
V13	0.023	0.007	--	--	--	--
V14	0.023	0.007	--	--	--	--
V15	0.023	0.007	--	--	--	--
V16	0.023	0.007	--	--	--	--
V17	0.023	0.007	--	--	--	--
V18	0.023	0.007	--	--	--	--
V19	0.023	0.007	--	--	--	--
V20	0.023	0.007	--	--	--	--
V21	0.023	0.007	--	--	--	--
V22	0.023	0.007	--	--	--	--
V23	0.023	0.007	--	--	--	--

STANDARD NO. 2 – AMBIENT AIR QUALITY STANDARDS EMISSION RATES (LB/HR)						
Emission Point ID	**PM_{10}**	**$PM_{2.5}$**	**SO_2**	**NO_x**	**CO**	**Lead**
V24	0.023	0.007	--	--	--	--
V25	0.023	0.007	--	--	--	--
V26	0.023	0.007	--	--	--	--
V27	0.023	0.007	--	--	--	--
V28	0.023	0.007	--	--	--	--
V29	0.023	0.007	--	--	--	--
V30	0.023	0.007	--	--	--	--
V31	0.023	0.007	--	--	--	--
V32	0.050	0.008	--	--	--	--
V33	0.040	0.006	--	--	--	--
V34	0.008	0.001	--	--	--	--
FACILITY TOTAL	2.593	0.415	--	--	--	--

STANDARD NO. 2 – EXEMPTED AMBIENT AIR QUALITY STANDARDS EMISSION RATES (LB/HR)						
Emission Point ID	**PM_{10}**	**$PM_{2.5}$**	**SO_2**	**NO_x**	**CO**	**Lead**
Customer	0.37	0.04	--	--	--	--
Haul	0.08	0.01	--	--	--	--
STP1	0.011	0.002	--	--	--	--
STP2	0.013	0.002	--	--	--	--
STP3	0.068	0.010	--	--	--	--
STP4	0.010	0.001	--	--	--	--
STP5	0.047	0.007	--	--	--	--
STP6	0.052	0.007	--	--	--	--
STP7	0.059	0.008	--	--	--	--
STP8	0.047	0.007	--	--	--	--
FACILITY TOTAL	0.757	0.094	--	--	--	--

EMISSION POINT DESCRIPTIVE INFORMATION				
Emission Point ID	**Source Identification & Description**	**Date Installed (Modified)**	**Status**	**Other**
Customer	Customer Roads (unpaved) with Wet Suppression	2024	Exempt Std 2: PM_{10}, $PM_{2.5}$ < 1.14 lb/hr	Customer Roads
Haul	Haul Roads (unpaved) with Wet Suppression	2024	Exempt Std 2: PM_{10}, $PM_{2.5}$ < 1.14 lb/hr	Haul Roads
STP1	Storage Pile No. 1	2024	Exempt Std 2: PM_{10}, $PM_{2.5}$ < 1.14 lb/hr	Material Storage
STP2	Storage Pile No. 2	2024	Exempt Std 2: PM_{10}, $PM_{2.5}$ < 1.14 lb/hr	Material Storage
STP3	Storage Pile No. 3	2024	Exempt Std 2: PM_{10}, $PM_{2.5}$ < 1.14 lb/hr	Material Storage
STP4	Storage Pile No. 4	2024	Exempt Std 2: PM_{10}, $PM_{2.5}$ < 1.14 lb/hr	Material Storage
STP5	Storage Pile No. 5	2024	Exempt Std 2: PM_{10}, $PM_{2.5}$ < 1.14 lb/hr	Material Storage
STP6	Storage Pile No. 6	2024	Exempt Std 2: PM_{10}, $PM_{2.5}$ < 1.14 lb/hr	Material Storage
STP7	Storage Pile No. 7	2024	Exempt Std 2: PM_{10}, $PM_{2.5}$ < 1.14 lb/hr	Material Storage
STP8	Storage Pile No. 8	2024	Exempt Std 2: PM_{10}, $PM_{2.5}$ < 1.14 lb/hr	Material Storage
V1	500 ton/hr Portable C125 Jaw Crusher (CR1) with Wet Suppression	2024		Drilling and Handling
V2	500 ton/hr VGF Screen (F1) with Wet Suppression	2024		Drilling and Handling
V3	500 ton/hr Under Crusher Conveyor (C1) with Wet Suppression	2024		Drilling and Handling
V4	500 ton/hr Cone Crusher (CR2) with Wet Suppression	2024		Drilling and Handling
V5	500 ton/hr Scalping Screen (S1) with Wet Suppression	2024		Drilling and Handling
V6	500 ton/hr Under Screen Conveyor (C3) with Wet Suppression	2024		Drilling and Handling
V7	500 ton/hr Under Crusher Conveyor (C8) with Wet Suppression	2024		Drilling and Handling
V8	500 ton/hr Cone Crusher (CR3) with Wet Suppression	2024		Drilling and Handling
V9	500 ton/hr Finish Screen (S2) with Wet Suppression	2024		Drilling and Handling
V10	500 ton/hr Screen Feed Conveyor (C11) with Wet Suppression	2024		Drilling and Handling

EMISSION POINT DESCRIPTIVE INFORMATION				
Emission Point ID	**Source Identification & Description**	**Date Installed (Modified)**	**Status**	**Other**
V11	500 ton/hr Screen Feed Conveyor (C12) with Wet Suppression	2024		Drilling and Handling
V12	500 ton/hr Under Screen Conveyor (C13) with Wet Suppression	2024		Drilling and Handling
V13	500 ton/hr Under Screen Conveyor (C14) with Wet Suppression	2024		Drilling and Handling
V14	500 ton/hr Scalper Feed Conveyor (C2) with Wet Suppression	2024		Drilling and Handling
V15	500 ton/hr GAB Jack Belt Conveyor (C4) with Wet Suppression	2024		Drilling and Handling
V16	500 ton/hr GAB Stacker Conveyor (C5) with Wet Suppression	2024		Drilling and Handling
V17	500 ton/hr 3s Stacker Conveyor (C7) with Wet Suppression	2024		Drilling and Handling
V18	500 ton/hr OTR Bin Feed Conveyor/ Surge Bin (C9) with Wet Suppression	2024		Drilling and Handling
V19	500 ton/hr Discharge Belt Conveyor (C10) with Wet Suppression	2024		Drilling and Handling
V20	500 ton/hr Fines Jack Belt Conveyor (C15) with Wet Suppression	2024		Drilling and Handling
V21	500 ton/hr Fines Jack Belt Conveyor (C17) with Wet Suppression	2024		Drilling and Handling
V22	500 ton/hr Wash Screen Feed (C20) with Wet Suppression	2024		Drilling and Handling
V23	500 ton/hr 789s Jack Belt Conveyor (C19) with Wet Suppression	2024		Drilling and Handling
V24	500 ton/hr Fines Jack Belt Conveyor (C18) with Wet Suppression	2024		Drilling and Handling
V25	500 ton/hr C33 Stacker Conveyor (C21) with Wet Suppression	2024		Drilling and Handling
V26	500 ton/hr Dry 10s Stacker Conveyor (C16) with Wet Suppression	2024		Drilling and Handling
V27	500 ton/hr Overs Jack Belt Conveyor (C22) with Wet Suppression	2024		Drilling and Handling

EMISSION POINT DESCRIPTIVE INFORMATION				
Emission Point ID	**Source Identification & Description**	**Date Installed (Modified)**	**Status**	**Other**
V28	500 ton/hr 789 Stacker Conveyor (C23) with Wet Suppression	2024		Drilling and Handling
V29	500 ton/hr 57s Stacker Conveyor (C24) with Wet Suppression	2024		Drilling and Handling
V30	500 ton/hr 7s Stacker Conveyor C26) with Wet Suppression	2024		Drilling and Handling
V31	500 ton/hr 7s Jack Belt Conveyor (C25) with Wet Suppression	2024		Drilling and Handling
V32	500 ton/hr Final Product Truck Loading (Tload) with Wet Suppression	2024		Drilling and Handling
V33	500 ton/hr Drilling inside the Quarry (Drill) with Wet Suppression	2024		Drilling and Handling
V34	500 ton/hr Truck Loading at the Quarry (HaulLoad) with Wet Suppression	2024		Drilling and Handling
Exempt	550-kW Diesel-Fired Generator (will not remain at the location for more than 12 consecutive months)	2024	Exempt Std 2, 8: ICE considered portable, “non-road” engine	Exempt
	Wash Plant Belt Feeder	2024	No emissions	Wash Plant Processes
	Wash Plant Chip Conveyor	2024	No emissions	
	Wash Plant Course Conveyor	2024	No emissions	
	Wash Plant Intermediate Conveyor	2024	No emissions	
	Wash Plant Sand Conveyor	2024	No emissions	
	Wash Plant Transfer Conveyor	2024	No emissions	

VOLUME SOURCE PARAMETERS									
Emission Point ID	Date Last Modeled	Location (UTM)[1]		Release Height AGL (ft)	Physical Horizontal Dimension (ft)	Initial Horizontal Dimension σ_Y (ft)	Physical Vertical Dimension (ft)	Initial Vertical Dimension σ_Z (ft)	Distance To Property Line (ft)
		East (m)	North (m)						
V1	04/26/24	398607	3720963	8	16.4	3.81	10.0	2.33	[2]
V2	04/26/24	398607	3720963	8	3.2	0.75	10.0	2.33	[2]
V3	04/26/24	398607	3720963	6.5	4.0	0.93	3.0	0.7	[2]
V4	04/26/24	398631	3720949	8	10.9	2.54	10.0	2.33	[2]
V5	04/26/24	398634	3720947	7	3.0	0.71	8.0	1.86	[2]
V6	04/26/24	398634	3720946	5.5	5.0	1.16	5.0	1.16	[2]
V7	04/26/24	398631	3720947	7.5	4.0	0.93	5.0	1.16	[2]
V8	04/26/24	398665	3720929	8	10.9	2.54	10.0	2.33	[2]
V9	04/26/24	398670	3720925	7	3.0	0.71	8	1.86	[2]
V10	04/26/24	398671	3720923	8	3.0	0.7	4.0	0.93	[2]
V11	04/26/24	398672	3720924	7.5	3.0	0.7	5.0	1.16	[2]
V12	04/26/24	398672	3720923	6	3.0	0.7	8.0	1.86	[2]
V13	04/26/24	398671	3720926	5.5	3.0	0.7	5.0	1.16	[2]
V14	04/26/24	398615	3720957	5.5	3.0	0.7	1.0	0.23	[2]
V15	04/26/24	398621	3720936	6	2.5	0.58	4.0	0.93	[2]
V16	04/26/24	398611	3720930	5	3.0	0.7	8.0	1.86	[2]
V17	04/26/24	398646	3720959	5.5	3.0	0.7	5.0	1.16	[2]
V18	04/26/24	398634	3720949	5	3.0	0.7	6.0	1.4	[2]
V19	04/26/24	398659	3720932	6	3.5	0.81	8.0	1.86	[2]
V20	04/26/24	398646	3720911	4	2.5	0.58	4.0	0.93	[2]
V21	04/26/24	398651	3720915	3.5	2.5	0.58	5.0	1.16	[2]
V22	04/26/24	398688	3720912	3	3.0	0.7	4.0	0.93	[2]
V23	04/26/24	398690	3720938	3.5	2.5	0.58	5.0	1.16	[2]
V24	04/26/24	398639	3720904	5	2.5	0.58	6.0	1.4	[2]
V25	04/26/24	398700	3720926	4.5	3.0	0.7	5.0	1.16	[2]
V26	04/26/24	398672	3720900	3.5	3.0	0.7	5.0	1.16	[2]
V27	04/26/24	398679	3720902	6	2.5	0.58	8.0	1.86	[2]
V28	04/26/24	398695	3720938	3.5	3.0	0.7	5.0	1.16	[2]
V29	04/26/24	398708	3720922	4	3.0	0.7	4.0	0.93	[2]

VOLUME SOURCE PARAMETERS									
Emission Point ID	Date Last Modeled	Location (UTM)[1]		Release Height AGL (ft)	Physical Horizontal Dimension (ft)	Initial Horizontal Dimension σ_Y (ft)	Physical Vertical Dimension (ft)	Initial Vertical Dimension σ_Z (ft)	Distance To Property Line (ft)
		East (m)	North (m)						
V30	04/26/24	398692	3720900	3.5	3.0	0.7	3.0	0.7	[2]
V31	04/26/24	398698	3720902	3.5	2.5	0.58	3.0	0.7	[2]
V32	04/26/24	398702	3720881	6	5.0	1.16	4.0	0.93	[2]
V33	04/26/24	398818	3721228	22.5	2.5	0.58	15	3.49	[2]
V34	04/26/24	398825	3721237	8	5.0	1.16	4.0	0.93	[2]
1) NAD83 datum									
2) See modeling files									

AERMOD/AERMAP SPECIFICATIONS TABLE								
MET DATA	AGS-FFC 2015-2019 [Surface = Augusta, Georgia (145 ft MSL); Upper Air = Peachtree City, Georgia]							
	ADJ_U*	Y	(Y/N)					
NED TERRAIN FILES	Edgefield and McCormick Counties (South Carolina), Columbia County (Georgia)							
PROJECTION DATUM	NAD27		NAD83	Y	WGS-84		NWS-84	
RURAL or URBAN?	Rural	Y	Urban					
ELEVATIONS EXTRACTED	Buildings		Sources	Y	Tanks		Receptors	Y

HISTORY			
Date	By	Reason	Description
4/26/24	VMG	C/P	Standard 2: PM_{10} and $PM_{2.5}$ emissions from each individual emission point ID for the Drilling and Material Handling area are less than 1.14 lb/hr and could be considered exempt from modeling. However, since PM_{10} emissions from the group of mining and material handling process sources (emission points V1 through V34) are greater than the exemption rate, the facility chose to model them with AERMOD to demonstrate compliance with Standard 2. The Bureau also modeled $PM_{2.5}$ from this same group of sources to demonstrate compliance. Standard 7: Since this is not a PSD project, no Standard 7 analysis is required. Standard 8: The generator is classified as a portable, "non-road" engine and will be in operation at the facility for less than 12 (twelve) months. Therefore, it is exempt.