

AIR COMPLIANCE ANALYSIS SUMMARY SHEET

COMPANY/FACILITY: Luck Stone – Luck Saluda
LOCATION (COUNTY): Batesburg-Leesville (Saluda) **DATE:** 9/19/23
PERMIT NUMBER: 1940-0027 **REVIEWED BY:** SWS

REQUEST: **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: **AMBIENT AIR QUALITY STANDARDS** **PSD INCREMENT**
 TOXIC AIR POLLUTANTS **DE MINIMIS**
 EXEMPTION **DEFERRAL**

OTHER: **EXPEDITED** **COLLOCATED (Y or N)**

PROJECT DESCRIPTION: The facility seeks a synthetic minor construction permit for a 500 tph aggregate mine and processing facility. The emission sources will consist of mining and material handling (crushing, screening and conveying), material storage (storage piles) and transportation (unpaved haul roads). Only PM₁₀ and PM_{2.5} will be emitted. Wet suppression will be utilized to control emissions and keep them below major source levels.

SUMMARY OF ANALYSIS & RESULTS: GEL Engineering LLC submitted a compliance analysis on behalf of the facility.
Standard 2: PM₁₀ and PM_{2.5} emissions from each individual emission point are below 1.14 lb/hr and are exempt from modeling. However, since PM₁₀ emissions from the group of mining and material handling sources (emission points V1 through V34) are greater than the exemption rate, the facility chose to model them with AERMOD. PM₁₀ emissions from all other sources and PM_{2.5} emissions from all sources are listed as exempt in this summary.
Standard 7: Since this is not a PSD project, no analysis is required.
Standard 8: Since no air toxics are emitted, no analysis is required.

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	85.9 ⁽¹⁾	34	120	150	80
1) The sixth-high over five years of met data.							

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	17-19				34		
PM ₁₀ 24-hr is the fourth-high over 3-year period.									

STANDARD NO. 2 – AMBIENT AIR QUALITY STANDARDS EMISSION RATES (LB/HR)						
Emission Point ID	PM₁₀	PM_{2.5}	SO₂	NO_x	CO	Lead
V1	0.27	--	--	--	--	--
V2	0.37	--	--	--	--	--
V3	0.023	--	--	--	--	--
V4	0.27	--	--	--	--	--
V5	0.37	--	--	--	--	--
V6	0.023	--	--	--	--	--
V7	0.023	--	--	--	--	--
V8	0.27	--	--	--	--	--
V9	0.37	--	--	--	--	--
V10	0.023	--	--	--	--	--
V11	0.023	--	--	--	--	--
V12	0.023	--	--	--	--	--
V13	0.023	--	--	--	--	--
V14	0.023	--	--	--	--	--
V15	0.023	--	--	--	--	--
V16	0.023	--	--	--	--	--
V17	0.023	--	--	--	--	--
V18	0.023	--	--	--	--	--
V19	0.023	--	--	--	--	--
V20	0.023	--	--	--	--	--
V21	0.023	--	--	--	--	--
V22	0.023	--	--	--	--	--
V23	0.023	--	--	--	--	--
V24	0.023	--	--	--	--	--
V25	0.023	--	--	--	--	--
V26	0.023	--	--	--	--	--
V27	0.023	--	--	--	--	--
V28	0.023	--	--	--	--	--
V29	0.023	--	--	--	--	--
V30	0.023	--	--	--	--	--
V31	0.023	--	--	--	--	--
V32	0.05	--	--	--	--	--
V33	0.04	--	--	--	--	--
V34	0.008	--	--	--	--	--
FACILITY TOTAL	2.593	--	--	--	--	--

STANDARD NO. 2 – EXEMPTED AMBIENT AIR QUALITY STANDARDS EMISSION RATES (LB/HR)						
Emission Point ID	PM₁₀	PM_{2.5}	SO₂	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	--	--	--	--

STANDARD NO. 2 - EXEMPTED AMBIENT AIR QUALITY STANDARDS EMISSION RATES (LB/HR)						
Emission Point ID	PM₁₀	PM_{2.5}	SO₂	NO_x	CO	Lead
STP6	0.052	0.007	--	--	--	--
STP7	0.059	0.008	--	--	--	--
STP8	0.047	0.007	--	--	--	--
V1	--	0.050	--	--	--	--
V2	--	0.025	--	--	--	--
V3	--	0.007	--	--	--	--
V4	--	0.050	--	--	--	--
V5	--	0.025	--	--	--	--
V6	--	0.007	--	--	--	--
V7	--	0.007	--	--	--	--
V8	--	0.050	--	--	--	--
V9	--	0.025	--	--	--	--
V10	--	0.007	--	--	--	--
V11	--	0.007	--	--	--	--
V12	--	0.007	--	--	--	--
V13	--	0.007	--	--	--	--
V14	--	0.007	--	--	--	--
V15	--	0.007	--	--	--	--
V16	--	0.007	--	--	--	--
V17	--	0.007	--	--	--	--
V18	--	0.007	--	--	--	--
V19	--	0.007	--	--	--	--
V20	--	0.007	--	--	--	--
V21	--	0.007	--	--	--	--
V22	--	0.007	--	--	--	--
V23	--	0.007	--	--	--	--
V24	--	0.007	--	--	--	--
V25	--	0.007	--	--	--	--
V26	--	0.007	--	--	--	--
V27	--	0.007	--	--	--	--
V28	--	0.007	--	--	--	--
V29	--	0.007	--	--	--	--
V30	--	0.007	--	--	--	--
V31	--	0.007	--	--	--	--
V32	--	0.008	--	--	--	--
V33	--	0.006	--	--	--	--
V34	--	0.001	--	--	--	--
FACILITY TOTAL	0.757	0.509	--	--	--	--

EMISSION POINT DESCRIPTIVE INFORMATION				
Emission Point ID	Source Identification & Description	Date Installed (Modified)	Status	Equip. ID
Customer	Customer Roads (unpaved)	2023	Exempt Std 2: PM ₁₀ , PM _{2.5} < 1.14 lb/hr	Customer
Haul	Haul Roads (unpaved)	2023		Haul
STP1	Storage Pile 1	2023		STP1
STP2	Storage Pile 2	2023		STP2
STP3	Storage Pile 3	2023		STP3
STP4	Storage Pile 4	2023		STP4
STP5	Storage Pile 5	2023		STP5
STP6	Storage Pile 6	2023		STP6
STP7	Storage Pile 7	2023	STP7	
STP8	Storage Pile 8	2023	STP8	
V1	Portable C125 Jaw Crusher	2023	Exempt Std 2: PM _{2.5} < 1.14 lb/hr	CR1
V2	VGf Screen	2023		F1
V3	Under Crusher Conveyor	2023		C1
V4	Cone Crusher	2023		CR2
V5	Scalping Screen	2023		S1
V6	Under Screen Conveyor	2023		C3
V7	Under Crusher Conveyor	2023		C8
V8	Cone Crusher	2023		CR3
V9	Finish Screen	2023		S2
V10	Screen Feed Conveyor	2023		C11
V11	Screen Feed Conveyor	2023		C12
V12	Under Screen Conveyor	2023		C13
V13	Under Screen Conveyor	2023		C14
V14	Scalper Feed Conveyor	2023		C2
V15	GAB Jack Belt Conveyor	2023		C4
V16	GAB Stacker Conveyor	2023		C5
V17	3s Stacker Conveyor	2023		C7
V18	OTR Bin Feed Conveyor/Surge Bin	2023		C9
V19	Discharge Belt Conveyor	2023		C10
V20	Fines Jack Belt Conveyor	2023		C15
V21	Fines Jack Belt Conveyor	2023		C17

EMISSION POINT DESCRIPTIVE INFORMATION				
Emission Point ID	Source Identification & Description	Date Installed (Modified)	Status	Equip. ID
V22	Wash Screen Feed	2023	Exempt Std 2: PM _{2.5} < 1.14 lb/hr	C20
V23	789s Jack Belt Conveyor	2023		C19
V24	Fines Jack Belt Conveyor	2023		C18
V25	C33 Stacker Conveyor	2023		C21
V26	Dry 10s Stacker Conveyor	2023		C16
V27	Overs Jack Belt Conveyor	2023		C22
V28	789 Stacker Conveyor	2023		C23
V29	57s Stacker Conveyor	2023		C24
V30	7s Stacker Conveyor	2023		C26
V31	7s Jack Belt Conveyor	2023		C25
V32	Final Product Truck Loading	2023		Tload
V33	Drilling inside the Quarry	2023		Drill
V34	Truck Loading at the Quarry	2023		HaulLoad

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	9/19/23	445590	3759039	8.0	16.4	3.81	10.0	2.33	(2)
V2	9/19/23	445590	3759039	8.0	3.2	0.75	10.0	2.33	(2)
V3	9/19/23	445590	3759039	6.5	4.0	0.93	3.0	0.7	(2)
V4	9/19/23	445590	3759060	8.0	10.9	2.54	10.0	2.33	(2)
V5	9/19/23	445611	3759039	7.0	3.0	0.71	8.0	1.86	(2)
V6	9/19/23	445613	3759040	5.5	5.0	1.16	5.0	1.16	(2)
V7	9/19/23	445610	3759039	7.5	4.0	0.93	5.0	1.16	(2)
V8	9/19/23	445590	3759069	8.0	10.9	2.54	10.0	2.33	(2)
V9	9/19/23	445590	3759072	7.0	3.0	0.71	8.0	1.86	(2)
V10	9/19/23	445591	3759075	8.0	3.0	0.7	4.0	0.93	(2)
V11	9/19/23	445592	3759077	7.5	3.0	0.7	5.0	1.16	(2)
V12	9/19/23	445592	3759077	6.0	3.0	0.7	8.0	1.86	(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)						
V13	9/19/23	445592	3759080	5.5	3.0	0.7	5.0	1.16	(2)
V14	9/19/23	445590	3759048	5.5	3.0	0.7	1.0	0.23	(2)
V15	9/19/23	445597	3759039	6.0	2.5	0.58	4.0	0.93	(2)
V16	9/19/23	445603	3759036	5.0	3.0	0.7	8.0	1.86	(2)
V17	9/19/23	445579	3759037	5.5	3.0	0.7	5.0	1.16	(2)
V18	9/19/23	445589	3759060	5.0	3.0	0.7	6.0	1.4	(2)
V19	9/19/23	445590	3759065	6.0	3.5	0.81	8.0	1.86	(2)
V20	9/19/23	445583	3759072	4.0	2.5	0.58	4.0	0.93	(2)
V21	9/19/23	445588	3759088	3.5	2.5	0.58	5.0	1.16	(2)
V22	9/19/23	445592	3759087	3.0	3.0	0.7	4.0	0.93	(2)
V23	9/19/23	445595	3759098	3.5	2.5	0.58	5.0	1.16	(2)
V24	9/19/23	445589	3759092	5.0	2.5	0.58	6.0	1.4	(2)
V25	9/19/23	445587	3759101	4.5	3.0	0.7	5.0	1.16	(2)
V26	9/19/23	445581	3759068	3.5	3.0	0.7	5.0	1.16	(2)
V27	9/19/23	445592	3759083	6.0	2.5	0.58	8.0	1.86	(2)
V28	9/19/23	445601	3759093	3.5	3.0	0.7	5.0	1.16	(2)
V29	9/19/23	445605	3759100	4.0	3.0	0.7	4.0	0.93	(2)
V30	9/19/23	445593	3759092	3.5	3.0	0.7	3.0	0.7	(2)
V31	9/19/23	445595	3759103	3.5	2.5	0.58	3.0	0.7	(2)
V32	9/19/23	445606	3759039	6.0	5.0	1.16	4.0	0.93	(2)
V33	9/19/23	445466	3758841	22.5	2.5	0.58	15.0	3.49	(2)
V34	9/19/23	445474	3758855	8.0	5.0	1.16	4.0	0.93	(2)

1) NAD83 datum

2) See modeling files

AERMOD/AERMAP SPECIFICATIONS TABLE									
MET DATA	GRD-GSO 2015-2019 [Surface = Greenwood, SC (631 ft MSL); Upper Air = Greensboro, NC]								
	ADJ_U*	<input checked="" type="checkbox"/>	(Y/N)						
NED TERRAIN FILES	Saluda County								
PROJECTION DATUM	NAD27	<input type="checkbox"/>	NAD83	<input checked="" type="checkbox"/>	WGS-84	<input type="checkbox"/>	NWS-84	<input type="checkbox"/>	
RURAL or URBAN?	Rural	<input checked="" type="checkbox"/>	Urban	<input type="checkbox"/>					
ELEVATIONS EXTRACTED	Buildings	<input type="checkbox"/>	Sources	<input checked="" type="checkbox"/>	Tanks	<input type="checkbox"/>	Receptors	<input checked="" type="checkbox"/>	

HISTORY			
Date	By	Reason	Description
9/19/23	SWS	C/P	New facility with only PM emissions. STD 2: All PM ₁₀ and PM _{2.5} emissions per emission point are below exemption level but facility chose to model PM ₁₀ emissions from the group of mining and material handling sources with AERMOD. STD 7 & STD 8: N/A.