Statement of Basis
Hot Mix Asphalt Plant General Permit

Permit to Construct No. P-2021.0008
Project ID 62589

Avail Valley Construction-ID, LLC - Driggs
Driggs, Idaho

Facility ID 081-00009

Final

July 23, 2021
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Permit Writer

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The purpose of this Statement of Basis is to satisfy the requirements of IDAPA 58.01.01.et seq, Rules for the Control of Air Pollution in Idaho, for issuing air permits.

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ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE

AAC	acceptable ambient concentrations
AACC	acceptable ambient concentrations for carcinogens
acfm	actual cubic feet per minute
ASTM	American Society for Testing and Materials
BMP	best management practices
Btu	British thermal units
CAA	Clean Air Act
CAM	Compliance Assurance Monitoring
CAS No.	Chemical Abstracts Service registry number
CEMS	continuous emission monitoring systems
cfm	cubic feet per minute
CFR	Code of Federal Regulations
CMS	continuous monitoring systems
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	CO_2 equivalent emissions
COMS	continuous opacity monitoring systems
DEQ	Department of Environmental Quality
dscf	dry standard cubic feet
EL	screening emission levels
EPA	U.S. Environmental Protection Agency
GHG	greenhouse gases
gph	gallons per hour
gpm	gallons per minute
gr	grains (1 lb = 7,000 grains)
HAP	hazardous air pollutants
HMA	hot mix asphalt
hp	horsepower
hr/yr	hours per consecutive 12 calendar month period
ICE	internal combustion engines
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
km	kilometers
lb/hr	pounds per hour
lb/qtr	pound per quarter
m	meters
MACT	Maximum Achievable Control Technology
MMBtu	million British thermal units
MMscf	million standard cubic feet
NAAQS	National Ambient Air Quality Standard
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
NSPS	New Source Performance Standards
O&M	operation and maintenance
O_2	oxygen
PAH	polyaromatic hydrocarbons
PC	permit condition
PCB	polychlorinated biphenyl
PM	particulate matter

$PM_{2.5}$	particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
POM	polycyclic organic matter
ppm	parts per million
ppmw	parts per million by weight
PSD	Prevention of Significant Deterioration
PTC	permit to construct
PTE	potential to emit
PW	process weight rate
RAP	recycled asphalt pavement
RFO	reprocessed fuel oil
RICE	reciprocating internal combustion engines
Rules	*Rules for the Control of Air Pollution in Idaho*
scf	standard cubic feet
SCL	significant contribution limits
SIP	State Implementation Plan
SO_2	sulfur dioxide
SO_x	sulfur oxides
T/day	tons per calendar day
T/hr	tons per hour
T/yr	tons per consecutive 12 calendar month period
TAP	toxic air pollutants
ULSD	ultra-low sulfur diesel
U.S.C.	United States Code
VOC	volatile organic compounds
$\mu g/m^3$	micrograms per cubic meter

FACILITY INFORMATION

Description

Avail Valley Construction-ID, LLC - Driggs has proposed a stationary source drum-mix asphalt plant. The plant has been previously permitted but as a portable plant approved to be located across the state with permitted limitations. The plant is now proposing to be stationary and due to IDEQ permitting requirements, the portable permit cannot be modified to be stationary and will need to be terminated, and a new stationary permit is required.

The asphalt plant consists of a parallel flow asphalt drum mixer equipped with a wet scrubber to control particulate matter, an asphaltic oil storage tank with a heater, and materials transfer equipment. Materials transfer equipment at the facility will include front end loaders, feed bins, storage silos, conveyors, stock piles, and haul trucks.

Asphalt is made at the facility as follows. First, stockpiled aggregate is transferred to feed bins. Aggregate is then dispensed from the feed bins onto feeder conveyors, which transfer the aggregate to the asphalt drum mixer. The applicant has requested that the asphalt drum mixer be fired on LPG/propane. Next, aggregate travels through the rotating drum mixer, and when dried and heated, it is mixed with hot liquid asphaltic oil. The asphaltic oil is heated by the asphalt tank heater to allow it to flow and be mixed with the hot, dry aggregate. The resulting asphalt is conveyed to hot storage bins until it can be loaded into trucks for transport off-site or transferred to silos for temporary storage prior to transport off-site.

The applicant has proposed that line power and portable electrical generators will be used at the facility. Therefore, IC engines powering electrical generators were included in the application.

Permitting History

This is the initial PTC for a stationary facility thus there is no permitting history. Even though the plant has previously been permitted as a portable source, this is the initial permit for the stationary facility.

Application Scope

This is the initial PTC for a stationary facility.

The asphalt plant will be fed a mixture of crushed fines and aggregates from imported aggregate. The process begins with materials being fed via front end loader to a compartment bin feeder system and then dispensed in metered proportions to a collecting conveyor. The material will pass over a scalping screen before being conveyed into the drum mixer via a scalping screen. Inside the drum mixer the aggregates will be heated to specification temperature and then asphaltic oil is added. In some instances up to 50% RAP may be substituted for virgin aggregate.

The mixed asphalt is dispensed to a slat conveyor and then lifted up to a hot storage silo for intermediate storage. Trucks are then loaded by driving under the hot storage silo. The silo loading process will be enclosed and vented back to the drum via suction induced either through the conveyor or via a separate duct line. The unloading process will be uncontrolled.

Particulate emissions from the asphalt drum mixer will be controlled a scrubber with a minimum control efficiency of 99%.

The asphalt plant will include a hot oil heating system designed to keep asphaltic oil at specification temperature. Heat will be provided via a fuel oil external combustion burner. This burner will operate intermittently during 24-hours per day much the way a hot water heater cycles. Typical burner operation during any 24-hour period is less than 8 hours.

The applicant has also proposed asphalt production rate throughput limits of 250 tons per hour, 2,000 tons per day, and 45,000 tons per year.

The applicant has also proposed that two compression ignition IC engines powering electrical generators, a primary and a secondary, will be used to provide electricity for the facility when line power is not available.

Application Chronology

March 3, 2021	DEQ received an application, an application fee, and the general permit processing fee.
March 10 – March 25, 2021	DEQ provided an opportunity to request a public comment period on the application and proposed permitting action.
March 29, 2021	DEQ determined that the application was complete.
May 24, 2021	DEQ made available the draft permit and statement of basis for peer and regional office review.
May 27, 2021	DEQ made available the draft permit and statement of basis for applicant review.
June 16 – July 16, 2021	DEQ provided a public comment period on the proposed action.
July 23, 2021	DEQ issued the final permit and statement of basis.

TECHNICAL ANALYSIS

The asphalt production facility utilizes a wet scrubber for control of particulate matter emissions from the asphalt drum mixer. In addition, the applicant will use water sprays, shrouds, or other emissions controls to minimize PM_{10} emissions from aggregate handling.

Emissions Units and Control Equipment

Table 1 EMISSIONS UNIT AND CONTROL EQUIPMENT INFORMATION

Source ID No.	Sources	Control Equipment	Emission Point ID No.
Materials Handling	Material Transfer Points: Materials handling Asphalt aggregate transfers Truck unloading of aggregate Aggregate conveyor transfers Aggregate handling	Using water sprays, using shrouds, or other emissions controls	N/A
Hot Mix Asphalt Drum Mixer	Asphalt Drum Mixer: Manufacturer: Cedar Rapids Model: SN882833586 Type: Parallel-flow Max. production: 250 T/hr, 2,000 T/day, and 45,000 T/yr Burner Mfg: Genco Burner Model No: AF-60 Burner Rating: 106 MMBtu/hr Fuel(s): LPG/Propane	Asphalt Drum Mixer Wet Scrubber: Manufacturer: Cedar Rapids Type: Venturi Liquid flow rate: 200 gpm Pressure drop. 11 in-H_20 PM_{10} control efficiency: 99.8%	Exit height: 24 ft Exit diameter: 4 ft Exit flow rate: 55,000 acfm Exit temperature: 150°F
Asphaltic Oil Tank Heater	Asphaltic Oil Tank Heater: Heat input rating: 2.95 MMBtu/hr Fuel(s): #2 fuel oil Sulfur content: 0.05% by weight	N/A	Exit height: 13 ft Exit diameter: 1 ft Exit temperature: 300 °F
Primary IC Engine	Primary IC Engine: Manufacturer: Caterpillar Model: 3412 Manufacture Date: 2004 Max. power rating: 896 bhp Fuel: Distillate Fuel Oil Sulfur content: 0.05% by weight Daily operational limit: 10 hrs/day Annual operational limit: 1,000 hrs/yr	N/A	Exit height: 13.2 ft Exit diameter: 0.88 ft Exit temperature: 1,340 °F
Secondary IC Engine	Secondary IC Engine: Manufacturer: Caterpillar Model: 3056 Manufacture Date: 1995 Max. power rating: 40 bhp Fuel: Distillate Fuel Oil Sulfur content: 0.05% by weight Daily operational limit: 10 hrs/day Annual use limit: 2,000 hrs/yr	N/A	Exit height: 6 ft Exit diameter: 3 in Exit temperature: 1,000 °F

Emissions Inventories

Potential to Emit

IDAPA 58.01.01 defines Potential to Emit as the maximum capacity of a facility or stationary source to emit an air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the facility or source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is state or federally enforceable. Secondary emissions do not count in determining the potential to emit of a facility or stationary source.

Using this definition of Potential to Emit an emission inventory was developed for the asphalt production operations at the facility associated with this proposed project using the DEQ developed HMA EI spreadsheet (see Appendix A). Emissions estimates of criteria pollutant PTE were based on the following assumptions:

- Maximum asphalt throughput does not exceed 250 ton HMA/hour, 2,000 ton HMA/day, and 45,000 ton HMA/year (per the applicant).
- Emissions from the asphalt drum dryer were based on the maximum emissions from using any of the proposed fuels for combustion in the drum dryer.
- Any emissions unit outside a 1,000 ft radius from the asphalt plant was not included in the emissions modeling analysis for this project.
- The primary IC engine powering a generator has a maximum brake-horsepower rating of less than less than or equal to 896 bhp, and proposed operation of up to 10 hour/day and 1,000 hour/year (per the applicant).
- The secondary IC engine powering a generator has a maximum brake-horsepower rating of less than less than or equal to 40 bhp and proposed operation of up to 10 hour/day and 2,000 hour/year (per the applicant).

Emission Factors

- Filterable PM_{10}. The following emission factors (EFs) were available in AP-42 Table 11.1-3 for PM/PM_{10} emissions when using a venturi or wet scrubber:

Table 2 AP-42 Table 11.1-3 PARTICULATE EMISSION FACTORS, lb/ton

	Filterable PM		Condensable PM		Total PM	
Process: Dryer	**PM**	**PM_{10}**	**Inorganic**	**Organic**	**PM**	**PM_{10}**
Venturi or wet scrubber	0.026	ND	0.0074	0.012	0.045	ND
Fabric Filter	0.014	0.0039	0.0074	0.012	0.033	0.023

The filterable PM_{10} fraction when using a wet scrubber was estimated using the particle size distribution when using a fabric filter listed in AP-42 Table 11.1-4:

Table 3 AP-42 Table 11.1-4 SUMMARY OF PARTICLE SIZE DISTRIBUTION FOR DRUM MIX DRYERS

	Cumulative Mass Less Than or Equal to Stated Size (%)[f]		Emission Factors, lb/ton	
Particle Size, µm[b]	Uncontrolled[d]	Fabric Filter	Uncontrolled[d]	Fabric Filter
1.0	ND	15[e]	ND	0.0021[e]
2.5	5.5	21[f]	1.5	0.0029[f]
10.0	23	30[g]	6.4	0.0042[g]
15.0	27	35[d]	7.6	0.0049[d]

Of the PM emitted from a fabric filter, 30% of it is sized at PM_{10} or less. This distribution can be assumed for scrubbers because the actual size distribution for venturi scrubbers will have a higher percentage of large sized particles in the total PM. Therefore, the fabric filter particle distribution is a conservative assumption for venturi scrubbers of PM_{10} and $PM_{2.5}$.

All of the filterable PM is PM_{10}:

$$\text{Filterable } PM_{10\ -\ \text{Scrubber}} = \frac{0.026 \text{ lb PM}}{\text{ton}} \times 30\% = 7.8\text{E-}03 \text{ lb } PM_{10}/\text{ton}$$

All of the condensable PM is PM_{10}:

$$\text{Condensable } PM_{10-\text{Scrubber}} = \frac{0.0074 \text{ lb } PM_{10}}{\text{ton}} + \frac{0.012 \text{ lb } PM_{10}}{\text{ton}} = 0.0194 \text{ lb } PM_{10}/\text{ton}$$

So the total PM_{10} EF can be estimated as:

$$\text{Total } PM_{10-\text{Scrubber}} = \frac{7.8E\text{-}03 \text{ lb } PM_{10}}{\text{ton}} + \frac{0.0194 \text{ lb } PM_{10}}{\text{ton}} = 0.0272 \text{ lb } PM_{10}/\text{ton}$$

- Convert Fabric Filter EFs to Scrubber EFs. Where EFs were not available for using a venturi scrubber for compounds that are emitted as particulates, emission factors for using a fabric filter (i.e., a baghouse) were adjusted presuming a 99% efficient baghouse and a 70% efficient scrubber, as follows:

$$EF_{\text{Scrubber}} = EF_{\text{Fabric Filter}} \times \frac{(1 - 0.70)}{(1 - 0.99)}$$

The efficiency for the baghouse is aconservative assumption looking at the emission factors for baghouses in AP-42. Using AP-42 Table 11.1-3, total PM_{10} emission factors for uncontrolled emissions and emissions controlled by a baghouse are related using the efficiency as follows:

$$EF_{\text{Fabric Filter}} = EF_{\text{Uncontrolled}} \times (1 - \text{Efficiency}_{\text{Fabric Filter}})$$

Rearranging this equation and using an uncontrolled EF of 6.5 lb/ton and a fabric filter EF of 0.023 lb/ton, the fabric filter efficiency can be calculated:

$$\text{Efficiency}_{\text{Fabric Filter}} = 1 - \frac{EF_{\text{Fabric Filter}}}{EF_{\text{Uncontrolled}}} = 1 - \frac{0.023}{6.5} = 0.9965 \rightarrow 99.7\%$$

We rounded the efficiency down to 99% for a conservative approach. The efficiency assumption, 70%, for the scrubber is also conservative given the listed efficiency of 99.8% control and the generally known particulate control of venturi scrubbers.

- Uncontrolled EFs = Fabric Filter EFs for Compounds Not Normally Captured in a Baghouse. AP-42 EFs developed based on HMA plant emissions which used a fabric filter (baghouse) were used to estimate emissions of criteria pollutants CO, NOx, SO_2, and VOCs, and toxic air pollutants (TAPs) hydrogen chloride (HCl), dioxins, furans, polyaromatic hydrocarbons (PAHs), non-polyaromatic hydrocarbons (non-PAHs), hazardous air pollutants (HAPs), PAH HAPs, and non-HAP organic compounds. Fabric filters have no or low capture efficiencies for pollutants that are emitted as gases or vapors. The baghouse EFs for these pollutants were presumed to represent uncontrolled emissions. No credit was taken for removal of these compounds using the scrubber.

Uncontrolled Potential to Emit

Using the definition of Potential to Emit, uncontrolled Potential to Emit is then defined as the maximum capacity of a facility or stationary source to emit an air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the facility or source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall **not** be treated as part of its design **since** the limitation or the effect it would have on emissions **is not** state or federally enforceable.

The uncontrolled Potential to Emit is used to determine if a facility is a "Synthetic Minor" source of emissions. Synthetic Minor sources are facilities that have an uncontrolled Potential to Emit for regulated air pollutants or HAP above the applicable Major Source threshold without permit limits.

The following table presents the post project uncontrolled emissions for regulated air pollutants as submitted by the applicant and verified by DEQ staff. Uncontrolled emissions were determined as follows:

- For the asphalt drum mixer uncontrolled emissions were assumed to be based upon four times the proposed annual throughput (4 x 45,000 T/yr = 180,000 T/yr).
- For the asphaltic oil tank heater controlled emissions were scaled up from 2,000 hours per year of permitted operation (as proposed by the applicant) to 8,760 hours per year for full-time operation.
- For the materials handling operation controlled and uncontrolled emissions were assumed to be equal.
- For the primary IC engine controlled emissions were scaled up from 1,000 hours per year of permitted operation (as proposed by the applicant) to 8,760 hours per year for full-time operation.

- For the secondary IC engine controlled emissions were scaled up from 2,000 hours per year of permitted operation (as proposed by the applicant) to 8,760 hours per year for full-time operation.

The following table presents the uncontrolled Potential to Emit for criteria pollutants as calculated per the DEQ HMA EI spreadsheet. See Appendix A for a detailed presentation of the calculations of these emissions for each emissions unit.

Table 4 UNCONTROLLED POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Emissions Unit	$PM_{10}/PM_{2.5}$	SO_2	NO_X	CO	VOC	CO_2e
	T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
Asphalt drum mixer	2.45	0.31	3.51	11.70	2.88	9,300.12
Asphaltic oil tank heater	0.22	0.67	2.26	0.47	0.052	
Primary IC engine and Secondary IC engine	3.95	1.39	93.1	24.5	2.91	
Load-out and silo filling	0.10	0.00	0.00	0.23	0.36	
Total	**6.72**	**2.37**	**98.87**	**36.90**	**6.20**	**9,300.1**

The following table presents the uncontrolled Potential to Emit for HAP pollutants as calculated per the DEQ HMA EI spreadsheet. See Appendix A for a detailed presentation of the calculations emissions for each emissions unit. Worst-case HAPs emissions were based upon the same assumptions as for criteria pollutants.

Table 5 UNCONTROLLED POTENTIAL TO EMIT FOR HAZARDOUS AIR POLLUTANTS

IDAPA Listing	Hazardous Air Pollutants	Uncontrolled PTE (T/yr)
585	Dioxins	1.89E-08
	Furans	2.17E-08
	Acrolein	3.30E-04
	Antimony	9.81E-04
	Barium	1.59E-02
	Chromium	1.49E-02
	Cobalt	6.38E-04
	Copper	8.54E-03
	Ethyl benzene	2.16E-02
	Hexane	8.28E-02
	Manganese	2.11E-02
	Methyl chloroform	4.32E-03
	Methyl ethyl ketone (MEK)	0.00E+00
	Molybdenum	7.42E-05
	Naphthalene	1.34E-02
	Pentane	0.00E+00
	Phosphorus	7.65E-02
	Propionaldehyde	0.00E+00
	Quinone	0.00E+00
	Selenium	1.01E-03
	Silver	1.30E-03
	Thallium	1.11E-05
	Toluene	2.17E-02
	Vanadium	3.00E-03
	Xylene	2.37E-02
	Zinc	1.67E-01
586	Acetaldehyde	1.63E-03
	Arsenic	1.64E-03
	Benzene	5.76E-02
	Benzo(a)anthracene	3.80E-05
	Benzo(a)pyrene	8.17E-06
	Benzo(b)fluoranthene	4.90E-05
	Benzo(k)fluoranthene	9.87E-06
	Beryllium	2.62E-06
	1,3-Butadiene	4.80E-05
	Cadmium	1.14E-03
	Chrysene	5.87E-05
	Dibenzo(a,h)anthracene	1.02E-05
	Formaldehyde	2.83E-01
	Hexavalent Chromium	1.24E-03

IDAPA Listing	Hazardous Air Pollutants	Uncontrolled PTE (T/yr)
	Indeno(1,2,3-cd)pyrene	1.25E-05
	3-Methylchloranthrene	0.00E+00
	Nickel	1.78E-01
Not listed	Acenaphthene	3.06E-04
	Acenaphthylene	1.05E-03
	Anthracene	7.29E-05
	Benzo(e)pyrene	9.90E-06
	Benzo(g,h,l)perylene	1.95E-05
	Dichlorobenzene	0.00E+00
	Fluoranthene	1.79E-04
	Fluorene	7.32E-04
	Isooctane	3.60E-03
	Mercury	6.59E-04
	2-Methylnaphthalene	6.66E-03
	Perylene	7.92E-07
	Phenanthrene	2.30E-03
	Pyrene	1.59E-04
	Total	**1.02**

Pre-Project Potential to Emit

Pre-project Potential to Emit is used to establish the change in emissions at a facility as a result of this project.

This is a new facility. Therefore, pre-project emissions are set to zero for all criteria pollutants.

Post Project Potential to Emit

The following table presents the post project Potential to Emit for criteria pollutants from all emissions units at the facility as determined by DEQ staff. See Appendix A for a detailed presentation of the calculations of these emissions for each emissions unit.

Table 6 POST PROJECT POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Emissions Unit	$PM_{10}/PM_{2.5}$		SO_2		NO_X		CO		VOC		CO_2e
	lb/hr[(a)]	T/yr[(b)]	lb/hr[(a)]	T/yr[(b)]	lb/hr[(a)]	T/yr[(b)]	lb/hr[(a)]	T/yr[(b)]	lb/hr[(a)]	T/yr[(b)]	T/yr[(b)]
Asphalt drum mixer	6.80	0.61	0.85	0.08	9.75	0.88	32.50	2.93	8.00	0.72	2,018.20
Asphaltic oil tank heater	0.05	0.10	0.15	0.31	0.52	1.03	0.11	0.22	0.012	0.02	
Primary IC engine and Secondary IC engine	0.90	0.49	0.33	0.16	21.31	11.27	5.60	2.93	0.67	0.38	
Load-out and silo filling	0.28	0.025	0.00	0.00	0.00	0.00	0.63	0.057	1.01	0.091	
Post Project Totals	**8.03**	**1.23**	**1.33**	**0.55**	**31.58**	**13.18**	**38.84**	**6.14**	**9.69**	**1.21**	**2,018.2**

a) Controlled average emission rate in pounds per hour is a daily average, based on the proposed daily operating schedule and daily limits.
b) Controlled average emission rate in tons per year is an annual average, based on the proposed annual operating schedule and annual limits.

As demonstrated in Tables 2 and 4, this facility has uncontrolled potential to emit for PM_{10}, SO_2, NO_X, CO, and VOC, and CO_2e emissions less than the Major Source threshold of 100 T/yr and 100,000 T/yr respectively and a controlled potential to emit for PM_{10}, SO_2, NO_X, CO, and VOC, and CO_2e emissions less than the Major Source threshold of 100 T/yr and 100,000 T/yr respectively. In addition, as demonstrated in Table 3, this facility has an uncontrolled potential to emit for HAP emissions less than the Major Source threshold of 10 T/yr for any one HAP and 25 T/y for all HAPs combined. Therefore, this facility is designated as a Minor facility.

Change in Potential to Emit

The change in facility-wide potential to emit is used to determine if a public comment period may be required and to determine the processing fee per IDAPA 58.01.01.225. The following table presents the facility-wide change in the potential to emit for criteria pollutants.

Table 7 CHANGES IN POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Emissions	$PM_{10}/PM_{2.5}$		SO_2		NO_X		CO		VOC		CO_2e
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	T/yr
Pre-Project Potential to Emit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
Post Project Potential to Emit	8.03	1.23	1.33	0.55	31.58	13.18	38.84	6.14	9.69	1.21	2,018.2
Changes in Potential to Emit	**8.03**	**1.23**	**1.33**	**0.55**	**31.58**	**13.18**	**38.84**	**6.14**	**9.69**	**1.21**	**2,018.2**

Non-Carcinogenic TAP Emissions

A summary of the estimated PTE emissions increase of non-carcinogenic toxic air pollutants (TAPs) is provided in the following table.

Table 8 PRE- AND POST PROJECT POTENTIAL TO EMIT FOR NON-CARCINOGENIC TOXIC AIR POLLUTANTS

Non-Carcinogenic Toxic Air Pollutants	Pre-Project 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Post Project 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Change in 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Non-Carcinogenic Screening Emission Level (lb/hr)	Exceeds Screening Level? (Y/N)
Acetone	0.00E-03	7.21E-04	**0.0007**	**119**	**No**
Antimony	0.00E-03	5.07E-04	**0.0005**	**0.033**	**No**
Barium	0.00E-03	1.45E-02	**0.0145**	**2**	**No**
Carbon disulfide	0.00E-03	2.08E-04	**0.0002**	**0.033**	**No**
Chromium metal (II and III)	0.00E-03	1.38E-02	**0.0138**	**0.033**	**No**
Cobalt metal dust, and fume	0.00E-03	1.30E-04	**0.0001**	**0.0033**	**No**
Copper (fume)	0.00E-03	7.77E-03	**0.0078**	**0.013**	**No**
Cumene	0.00E-03	3.81E-04	**0.0004**	**16.3**	**No**
Ethyl benzene	0.00E-03	2.14E-02	**0.0214**	**29**	**No**
Ethyl chloride (Chloroethane)	0.00E-03	4.14E-05	**0.0000**	**176**	**No**
Heptane	0.00E-03	7.83E-01	**0.7830**	**109**	**No**
Hexane	0.00E-03	7.82E-02	**0.0782**	**12**	**No**
Manganese as Mn (fume)	0.00E-03	1.93E-02	**0.0193**	**0.067**	**No**
Mercury (alkyl compounds as Hg)	0.00E-03	6.01E-04	**0.0006**	**0.001**	**No**
Methyl bromide	0.00E-03	8.30E-05	**0.0001**	**1.27**	**No**
Methyl chloride (Chloromethane)	0.00E-03	2.86E-04	**0.0003**	**6.867**	**No**
Methyl chloroform	0.00E-03	4.00E-03	**0.0040**	**127**	**No**
Methyl ethyl ketone (MEK)	0.00E-03	5.66E-04	**0.0006**	**39.3**	**No**
Molybdenum (soluble)	0.00E-03	8.47E-06	**0.0000**	**0.333**	**No**
Pentane	0.00E-03	1.75E-02	**0.0175**	**118**	**No**
Phenol	0.00E-03	3.35E-04	**0.0003**	**1.27**	**No**
Phosphorous	0.00E-03	7.01E-02	**0.0701**	**0.007**	**Yes**
Selenium	0.00E-03	8.82E-04	**0.0009**	**0.013**	**No**
Silver	0.00E-03	1.20E-03	**0.0012**	**0.007**	**No**
Styrene monomer	0.00E-03	8.01E-05	**0.0001**	**6.67**	**No**
Thallium	0.00E-03	1.03E-05	**0.0000**	**0.007**	**No**
Toluene	0.00E-03	1.39E-02	**0.0139**	**25**	**No**
Vanadium as V_2O_5, (respirable dust and fume)	0.00E-03	3.42E-04	**0.0003**	**0.003**	**No**
Xylene	0.00E-03	2.35E-02	**0.0235**	**29**	**No**
Zinc metal	0.00E-03	1.53E-01	**0.1530**	**0.667**	**No**

Some of the PTEs for non-carcinogenic TAPs were exceeded as a result of this project. Therefore, modeling is required for Phosphorus because the 24-hour average non-carcinogenic screening ELs identified in IDAPA 58.01.01.586 were exceeded.

Carcinogenic TAP Emissions

A summary of the estimated PTE for emissions increase of carcinogenic TAPs is provided in the following table.

Table 9 PRE- AND POST PROJECT POTENTIAL TO EMIT FOR CARCINOGENIC TOXIC AIR POLLUTANTS

Carcinogenic Toxic Air Pollutants	Pre-Project Annual Average Emissions Rates for Units at the Facility (lb/hr)	Post Project Annual Average Emissions Rates for Units at the Facility (lb/hr)	Change in Annual Average Emissions Rates for Units at the Facility (lb/hr)	Carcinogenic Screening Emission Level (lb/hr)	Exceeds Screening Level? (Y/N)
Arsenic	0.00E-03	9.93E-05	**0.000099**	**1.5E-06**	**Yes**
Benzene	0.00E-03	2.03E-03	**0.0020**	**8.0E-04**	**Yes**
Beryllium and compounds	0.00E-03	2.73E-07	**0.0000003**	**2.8E-05**	**No**
Cadmium and compounds	0.00E-03	6.71E-05	**0.0000671**	**3.7E-06**	**Yes**
Chromium (VI)	0.00E-03	7.18E-05	**0.000072**	**5.6E-07**	**Yes**
Dichloromethane	0.00E-03	2.74E-06	**0.000003**	**1.6E-03**	**No**
Formaldehyde	0.00E-03	1.64E-02	**0.0164**	**5.1E-04**	**Yes**
Nickel	0.00E-03	1.05E-02	**0.0105**	**2.7E-05**	**Yes**
PAHs Total	0.00E-03	1.44E-03	**0.0014**	**9.1E-05**	**Yes**
POM[a] Total	0.00E-03	9.63E-06	**0.000010**	**2.0E-06**	**Yes**
Tetrachloroethylene	0.00E-03	2.67E-05	**0.0000**	**1.3E-02**	**No**

a) Polycyclic Organic Matter (POM) is considered as one TAP comprised of: benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, chrysene, indeno(1,2,3-cd)pyrene, benzo(a)pyrene. The total is compared to benzo(a)pyrene.

Some of the PTEs for carcinogenic TAPs were exceeded as a result of this project. Therefore, modeling is required for Arsenic, Benzene, Cadmium, Chromium (VI), Formaldehyde, Nickel, PAHs, and POM because the annual average carcinogenic screening ELs identified in IDAPA 58.01.01.586 were exceeded.

Post Project HAP Emissions

The following table presents the post project potential to emit for hazardous air pollutants (HAPs) pollutants from all emissions units at the facility as submitted by the applicant and verified by DEQ staff. See Appendix A for a detailed presentation of the calculations of these emissions for each emissions unit.

Table 10 POTENTIAL TO EMIT FOR HAZARDOUS AIR POLLUTANTS EMISSIONS

IDAPA Listing	Hazardous Air Pollutants	PTE (T/yr)
585	Dioxins	8.61E-09
	Furans	9.90E-09
	Acrolein	5.06E-05
	Antimony	3.48E-04
	Barium	4.03E-03
	Chromium	3.75E-03
	Cobalt	2.77E-04
	Copper	2.17E-03
	Ethyl benzene	5.40E-03
	Hexane	2.07E-02
	Manganese	5.33E-03
	Methyl chloroform	1.08E-03
	Methyl ethyl ketone (MEK)	0.00E+00
	Molybdenum	3.39E-05
	Naphthalene	3.19E-03
	Pentane	0.00E+00
	Phosphorus	1.93E-02
	Propionaldehyde	0.00E+00
	Quinone	0.00E+00
	Selenium	2.66E-04
	Silver	3.24E-04
	Thallium	2.77E-06
	Toluene	4.37E-03
	Vanadium	1.37E-03
	Xylene	5.19E-03
	Zinc	4.24E-02
586	Acetaldehyde	2.94E-04
	Arsenic	4.35E-04
	Benzene	1.15E-02
	Benzo(a)anthracene	7.15E-06
	Benzo(a)pyrene	1.08E-06
	Benzo(b)fluoranthene	1.01E-05
	Benzo(k)fluoranthene	1.65E-06
	Beryllium	1.20E-06
	1,3-Butadiene	1.09E-05
	Cadmium	2.94E-04
	Chrysene	8.95E-06
	Dibenzo(a,h)anthracene	1.25E-06
	Formaldehyde	7.05E-02
	Hexavalent Chromium	3.14E-04
	Indeno(1,2,3-cd)pyrene	1.56E-06
	3-Methylchloranthrene	0.00E+00
	Nickel	4.62E-02
Not listed	Acenaphthene	6.94E-05
	Acenaphthylene	2.32E-04
	Anthracene	1.71E-05
	Benzo(e)pyrene	2.48E-06
	Benzo(g,h,l)perylene	2.78E-06
	Dichlorobenzene	0.00E+00
	Fluoranthene	3.04E-05
	Fluorene	1.35E-04
	Isooctane	9.00E-04
	Mercury	1.67E-04
	2-Methylnaphthalene	1.67E-03
	Perylene	1.98E-07
	Phenanthrene	5.18E-04
	Pyrene	2.65E-05
	Total	**0.25**

The estimated PTE for all federally listed HAPs combined is below 25 T/yr and no PTE for a federally listed HAP exceeds 10 T/yr. Therefore, this facility is not a Major Source for HAPs.

Ambient Air Quality Impact Analyses

As presented in the Modeling Memo in Appendix B, the estimated emission rates of PM_{10}, $PM_{2.5}$, SO_2, NO_X, CO, VOC, HAP, and TAP from this project were below applicable screening emission levels (EL) and published DEQ modeling thresholds established in IDAPA 58.01.01.585-586 and in the State of Idaho Air Quality Modeling Guideline[1]. Refer to the Emissions Inventories section for additional information concerning the emission inventories.

The applicant has demonstrated pre-construction compliance to DEQ's satisfaction that emissions from this facility will not cause or significantly contribute to a violation of any ambient air quality standard. The applicant has also demonstrated pre-construction compliance to DEQ's satisfaction that the emissions increase due to this permitting action will not exceed any acceptable ambient concentration (AAC) or acceptable ambient concentration for carcinogens (AACC) for toxic air pollutants (TAP). A summary of the Ambient Air Impact Analysis for TAP is provided in Appendix B.

An ambient air quality impact analysis document has been crafted by DEQ based on a review of the modeling analysis submitted in the application. That document is part of the final permit package for this permitting action (see Appendix B).

As a result of the ambient air quality impact analysis, as well as information submitted by the applicant for specific operating scenarios, the following conditions (along with corresponding monitoring and record keeping requirements) were placed in the permit:

- The Emissions Limits permit condition,
- The Asphalt Production Limits permit condition,
- The Allowable Raw Materials permit condition,
- The Seasonal Operation permit condition,
- The Simultaneous Operation Requirement permit condition

T-RACT Analysis

DEQ is satisfied that an asphalt plant adhering to the conditions of this permit will not exceed any applicable acceptable ambient concentration (AAC) or AAC for carcinogens (AACC) for TAPs, except those TAPs using T-RACT analysis to demonstrate pre-construction compliance. As described in the Emissions Inventories Section previously, most of the uncontrolled TAP emission rate estimates were found to be less than their corresponding emission screening level (EL) listed in Section 585-586 of IDAPA 58.01.01. For those TAPs, the requirements under Section 210.05 are met and no further procedures for demonstrating preconstruction compliance are required.

For the TAPs that exceed the EL in Section 585-586 of IDAPA 58.01.01, preconstruction compliance was demonstrated under the rules for toxic air pollutant reasonably available control technology (T-RACT) as specified in Sections 210.12-14 of IDAPA 58.01.01.

In accordance with IDAPA 58.01.01.210.12, the proposed T-RACT ambient concentrations at the point of compliance for each applicable TAP are less than, or equal to, the T-RACT ambient concentration (i.e., less than 10 times the applicable AACC listed in IDAPA 58.01.01.586).

[1] Criteria pollutant thresholds in Table 1, State of Idaho Air Quality Modeling Guideline, Doc ID AQ-011, rev. 1, December 31, 2002.

In accordance with IDAPA 58.01.01.210.14, this T-RACT analysis included consideration of available control technologies and/or "The application of a design, equipment, work practice or operational requirement, or combination thereof", for compliance with the T-RACT requirements. This included a search of EPA's RACT, BACT, LAER Clearinghouse to identify available control technologies. To meet the T-RACT requirements, the permit requires the control measures determined to meet T-RACT as summarized in the following table. These control measure were selected based upon consideration of the technological feasibility for this process/operation, the economic feasibility, energy requirements, and environmental impacts.

For control technologies, the TAPs from this operation are categorized as follows:

- Metals: Arsenic; Cadmium, Chromium VI, and Nickel
- Organics and acids: PAHs, POM, dioxins/furans, hydrochloric acid, quinone, and acetaldehyde

Table 11 T-RACT CONTROL MEASURES

TAP	Proposed T-RACT Control Measures	Permit Conditions
Organics	Good maintenance practices for the control equipment (the scrubber)	3.21
Metals	Fuel specifications	3.11 and 3.12
	Scrubber control of HMA drum mixer emissions	3.9
Formaldehyde	Use of a covered conveyor from the HMA drum mixer to the silo/load out to minimize off-gassing emissions	2.2

In accordance with IDAPA 58.01.01.210.12.d and 58.01.01.210.14.e, emission limits and other permit conditions for each T-RACT pollutant have been incorporated into the permit as summarized in the table above to assure that the facility will be operated in the manner described in the preconstruction compliance demonstration. A detailed T-RACT analysis is provided on the DEQ website.

REGULATORY ANALYSIS

Attainment Designation (40 CFR 81.313)

The facility is located in Teton County, which is designated as attainment or unclassifiable for $PM_{2.5}$, PM_{10}, SO_2, NO_2, CO, and Ozone. Refer to 40 CFR 81.313 for additional information.

Facility Classification

The AIRS/AFS facility classification codes are as follows:

For HAPs (Hazardous Air Pollutants) Only:

A = Use when any one HAP has permitted emissions > 10 T/yr or if the aggregate of all HAPS (Total HAPs) has permitted emissions > 25 T/yr.

SM80 = Use if a synthetic minor (uncontrolled HAPs emissions are > 10 T/yr or if the aggregate of all uncontrolled HAPs (Total HAPs) emissions are > 25 T/yr and permitted emissions fall below applicable major source thresholds) and the permit sets limits > 8 T/yr of a single HAP or ≥ 20 T/yr

of Total HAPs.

SM = Use if a synthetic minor (uncontrolled HAPs emissions are > 10 T/yr or if the aggregate of all uncontrolled HAPs (Total HAPs) emissions are > 25 T/yr and permitted emissions fall below applicable major source thresholds) and the permit sets limits < 8 T/yr of a single HAP and/or < 20 T/yr of Total HAPs.

B = Use when the potential to emit (i.e. uncontrolled emissions and permitted emissions) are below the 10 and 25 T/yr HAP major source thresholds.

UNK = Class is unknown.

For All Other Pollutants:

A = Use when permitted emissions of a pollutant are > 100 T/yr.

SM80 = Use if a synthetic minor for the applicable pollutant (uncontrolled emissions are > 100 T/yr and permitted emissions fall below 100 T/yr) and permitted emissions of the pollutant are ≥ 80 T/yr.

SM = Use if a synthetic minor for the applicable pollutant (uncontrolled emissions are > 100 T/yr and permitted emissions fall below 100 T/yr) and permitted emissions of the pollutant are < 80 T/yr.

B = Use when the potential to emit (i.e. uncontrolled emissions and permitted emissions) are below the 100 T/yr major source threshold.

UNK = Class is unknown.

Table 12 Regulated Air Pollutant Facility Classification

Pollutant	Uncontrolled PTE (T/yr)	Permitted PTE (T/yr)	Major Source Thresholds (T/yr)	AIRS/AFS Classification
PM	6.72	1.23	**100**	B
PM_{10}	6.72	1.23	**100**	B
$PM_{2.5}$	6.72	1.23	**100**	B
SO_2	2.37	0.55	**100**	B
NO_X	98.87	13.18	**100**	B
CO	36.90	6.14	**100**	B
VOC	6.20	1.21	**100**	B
HAP (single)	0.28	0.07	**10**	B
Total HAPs	1.02	0.25	**25**	B

Permit to Construct (IDAPA 58.01.01.201)

IDAPA 58.01.01.201……Permit to Construct Required

The permittee has requested that a PTC be issued to the facility for the proposed new emissions source. Therefore, a permit to construct is required to be issued in accordance with IDAPA 58.01.01.220. This permitting action was processed in accordance with the procedures of IDAPA 58.01.01.200-228.

Tier II Operating Permit (IDAPA 58.01.01.401)

IDAPA 58.01.01.401……Tier II Operating Permit

The application was submitted for a permit to construct (refer to the Permit to Construct section), and an optional Tier II operating permit has not been requested. Therefore, the procedures of IDAPA 58.01.01.400–410 were not applicable to this permitting action.

Visible Emissions (IDAPA 58.01.01.625)

IDAPA 58.01.01.625……Visible Emissions

The sources of PM_{10} emissions at this facility are subject to the State of Idaho visible emissions standard of 20% opacity. This requirement is assured by Permit Conditions 3.5 and 4.4.

Fugitive Emissions (IDAPA 58.01.01.650)

IDAPA 58.01.01.650……Rules for the Control of Fugitive Emissions

The sources of fugitive emissions at this facility are subject to the State of Idaho fugitive emissions standards. These requirements are assured by Permit Conditions 2.1 and 2.2.

Particulate Matter – New Equipment Process Weight Limitations (IDAPA 58.01.01.701)

IDAPA 58.01.01.701……Particulate Matter – New Equipment Process Weight Limitations

IDAPA 58.01.01.700 through 703 set PM emission limits for process equipment based on when the piece of equipment commenced operation and the piece of equipment's process weight (PW) in pounds per hour (lb/hr). IDAPA 58.01.01.701 and IDAPA 58.01.01.702 establish PM emission limits for equipment that commenced operation on or after October 1, 1979 and for equipment operating prior to October 1, 1979, respectively.

For equipment that commenced operation on or after October 1, 1979, the PM allowable emission rate (E) is based on one of the following four equations:

- IDAPA 58.01.01.701.01.a: If PW is < 9,250 lb/hr; $E = 0.045 (PW)^{0.60}$
- IDAPA 58.01.01.701.01.b: If PW is ≥ 9,250 lb/hr; $E = 1.10 (PW)^{0.25}$

For equipment that commenced prior to October 1, 1979, the PM allowable emission rate is based on one of the following equations:

- IDAPA 58.01.01.702.01.a: If PW is < 17,000 lb/hr; $E = 0.045 (PW)^{0.60}$
- IDAPA 58.01.01.702.01.b: If PW is ≥ 17,000 lb/hr; $E = 1.12 (PW)^{0.27}$

For the new asphalt drum mixer emissions unit proposed to be installed as a result of this project with a proposed throughput of 250 T/hr, E is calculated as follows:

Proposed throughput = 250 T/hr x 2,000 lb/1 T = 500,000 lb/hr

Therefore, E is calculated as:

- $E = 1.10 \times PW^{0.25} = 1.10 \times (500{,}000)^{0.25} = 29.25$ lb-PM/hr

As presented previously in the Emissions Inventories Section of this evaluation the post project PTE for this emissions unit is 8.03 lb-PM_{10}/$PM_{2.5}$ per hour. Assuming PM is 50% PM_{10}/$PM_{2.5}$ means that PM emissions will be 16.06 lb-PM/hr (8.03 lb- PM_{10}/$PM_{2.5}$ per hour ÷ 0.5 lb-PM_{10}/$PM_{2.5}$ per lb-PM). This is less than the calculated Rule requirement PM emissions rate of 29.25 lb-PM/hr. Therefore, compliance with this requirement has been demonstrated.

Rules for Control of Odors (IDAPA 58.01.01.775)

IDAPA 58.01.01.750……Rules for Control of Odors

Section 776.01 states that no person shall allow, suffer, cause, or permit the emission of odorous gases, liquids, or solids into the atmosphere in such quantities as to cause air pollution. These requirements are assured by Permit Conditions 2.5 and 2.6.

Rules for Control of Hot-Mix Asphalt Plants (IDAPA 58.01.01.805)

IDAPA 58.01.01.805……Rules for Control of Hot-Mix Asphalt Plants

The purpose of Sections 805 through 808 is to establish for hot-mix asphalt plants restrictions on the emission of particulate matter.

Section 806 states that no person shall cause, allow or permit a hot-mix asphalt plant to have particulate emissions which exceed the limits specified in Sections 700 through 703. As demonstrated previously, these requirements have been met by the proposed PM_{10} emissions rate (see Section on Particulate Matter – New Equipment Process Weight Limitations).

Section 807 states that in the case of more than one stack to a hot-mix asphalt plant, the emission limitation will be based on the total emission from all stacks. The proposed facility only has one stack for emissions from the asphalt drum dryer so there is no need to combine emissions limits from multiple stacks into one stack as required.

Section 808.01 requires fugitive emission controls as follows: No person shall cause, allow or permit a plant to operate that is not equipped with an efficient fugitive dust control system. The system shall be operated and maintained in such a manner as to satisfactorily control the emission of particulate material from any point other than the stack outlet.

Section 808.02 requires plant property dust controls as follows: The owner or operator of the plant shall maintain fugitive dust control of the plant premises and plant owned, leased or controlled access roads by paving, oil treatment or other suitable measures. Good operating practices, including water spraying or other suitable measures, shall be employed to prevent dust generation and atmospheric entrainment during operations such as stockpiling, screen changing and general maintenance.

These requirements are assured by Permit Conditions 2.1 and 2.2.

Title V Classification (IDAPA 58.01.01.300, 40 CFR Part 70)

IDAPA 58.01.01.301……Requirement to Obtain Tier I Operating Permit

IDAPA 58.01.01.006 defines a Tier I source as "Any source located at a major facility as defined in Section 008." IDAPA 58.01.01.008.10 defines a Major Facility as either:

- For HAP a facility with the potential to emit ten (10) tons per year (T/yr) or more of any hazardous air pollutant, other than radionuclides, or
- The facility emits or has the potential to emit twenty-five (25) T/yr or more of any combination of any hazardous air pollutants, other than radionuclides.

or, for non-attainment areas (Note: The State of Idaho currently has no serious non-attainment areas therefore the Major Source threshold is defined as follows):

- The facility emits or has the potential to emit one hundred (100) tons per year or more of any regulated air pollutant. The fugitive emissions shall not be considered in determining whether the facility is major unless the facility is a "Designated Facility":

Therefore, it needs to be determined if this facility is a HAP Major Source. The following table compares this facility's post-project facility-wide annual PTE for all HAP emitted by the source to the HAP Major Source thresholds in order to determine if this facility is a HAP Major Source.

Table 13 PTE FOR THE HAZARDOUS AIR POLLUTANTS COMPARED TO THE MAJOR SOURCE THRESHOLDS

Hazardous Air Pollutants	PTE (T/yr)	Major Source Threshold (T/yr)	Exceeds the Major Source Threshold?
Dioxins	8.61E-09	10	No
Furans	9.90E-09	10	No
Acrolein	5.06E-05	10	No
Antimony	3.48E-04	10	No
Barium	4.03E-03	10	No
Chromium	3.75E-03	10	No
Cobalt	2.77E-04	10	No
Copper	2.17E-03	10	No
Ethyl benzene	5.40E-03	10	No
Hexane	2.07E-02	10	No

Manganese	5.33E-03	10	No
Methyl chloroform	1.08E-03	10	No
Methyl ethyl ketone (MEK)	0.00E+00	10	No
Molybdenum	3.39E-05	10	No
Naphthalene	3.19E-03	10	No
Pentane	0.00E+00	10	No
Phosphorus	1.93E-02	10	No
Propionaldehyde	0.00E+00	10	No
Quinone	0.00E+00	10	No
Selenium	2.66E-04	10	No
Silver	3.24E-04	10	No
Thallium	2.77E-06	10	No
Toluene	4.37E-03	10	No
Vanadium	1.37E-03	10	No
Xylene	5.19E-03	10	No
Zinc	4.24E-02	10	No
Acetaldehyde	2.94E-04	10	No
Arsenic	4.35E-04	10	No
Benzene	1.15E-02	10	No
Benzo(a)anthracene	7.15E-06	10	No
Benzo(a)pyrene	1.08E-06	10	No
Benzo(b)fluoranthene	1.01E-05	10	No
Benzo(k)fluoranthene	1.65E-06	10	No
Beryllium	1.20E-06	10	No
1,3-Butadiene	1.09E-05	10	No
Cadmium	2.94E-04	10	No
Chrysene	8.95E-06	10	No
Dibenzo(a,h)anthracene	1.25E-06	10	No
Formaldehyde	7.05E-02	10	No
Hexavalent Chromium	3.14E-04	10	No
Indeno(1,2,3-cd)pyrene	1.56E-06	10	No
3-Methylchloranthrene	0.00E+00	10	No
Nickel	4.62E-02	10	No
Acenaphthene	6.94E-05	10	No
Acenaphthylene	2.32E-04	10	No
Anthracene	1.71E-05	10	No
Benzo(e)pyrene	2.48E-06	10	No
Benzo(g,h,l)perylene	2.78E-06	10	No
Dichlorobenzene	0.00E+00	10	No
Fluoranthene	3.04E-05	10	No
Fluorene	1.35E-04	10	No
Isooctane	9.00E-04	10	No
Mercury	1.67E-04	10	No
2-Methylnaphthalene	1.67E-03	10	No
Perylene	1.98E-07	10	No
Phenanthrene	5.18E-04	10	No
Pyrene	2.65E-05	10	No
Total	**0.25**	**25**	**No**

As presented in the preceding table the PTE for each HAP is less than 10 T/yr and the PTE for all HAP combined is less than 25 T/yr. Therefore, this facility is not a HAP Major Source subject to Tier I requirements.

Therefore, it needs to be determined if this facility is a criteria pollutant Major Source. As discussed previously the Avail Valley Construction-ID, LLC – Driggs facility is located in Teton County (AQCR 61), which is designated as unclassifiable/attainment for $PM_{2.5}$, PM_{10}, SO_2, NO_x, CO, and Ozone for federal and state criteria air pollutants. Therefore, the following table compares the post-project facility-wide annual PTE for all criteria pollutants emitted by the source to the applicable criteria pollutant Major Source thresholds in order to determine if the facility is a criteria pollutant Major Source.

Table 14 PTE FOR REGULATED AIR POLLUTANTS COMPARED TO THE MAJOR SOURCE THRESHOLDS

Regulated Air Pollutants	PTE (T/yr)	Major Source Threshold (T/yr)	Exceeds the Major Source Threshold?
$PM_{10}/PM_{2.5}$	1.23	100	No
SO_2	0.55	100	No
NO_X	13.18	100	No
CO	6.14	100	No
VOC	1.21	100	No
CO_2e	2,018.2	100,000	No

As presented in the preceding table the PTE for each criteria pollutant is less than 100 T/yr. Therefore, this facility is not a criteria pollutant Major Source subject to Tier I requirements.

PSD Classification (40 CFR 52.21)

40 CFR 52.21…….... Prevention of Significant Deterioration of Air Quality

The facility is not a major stationary source as defined in 40 CFR 52.21(b)(1), nor is it undergoing any physical change at a stationary source not otherwise qualifying under paragraph 40 CFR 52.21(b)(1) as a major stationary source, that would constitute a major stationary source by itself as defined in 40 CFR 52. Therefore in accordance with 40 CFR 52.21(a)(2), PSD requirements are not applicable to this permitting action. The facility is/is not a designated facility as defined in 40 CFR 52.21(b)(1)(i)(a), and does not have facility-wide emissions of any criteria pollutant that exceed 250 T/yr.

NSPS Applicability (40 CFR 60)

Because the facility produces asphalt and has two compression ignition IC engines the following NSPS Subparts are applicable:

- 40 CFR 60, Subpart I - National Standards of Performance for Hot Mix Asphalt Plants
- 40 CFR 60, Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

DEQ has been delegated authority to this subpart.

Those sections that are applicable are highlighted.

40 CFR 60, Subpart I **National Standards of Performance for Hot Mix Asphalt Plants**

This permitting action is for a new asphalt plant. Therefore, the requirements of this subpart may apply.

§ 60.90…….. Applicability and designation of affected facility

In accordance with §60.90(a), each hot mix asphalt facility is an affected facility. In accordance with §60.90(b), any hot mix asphalt facility that commences construction or modification after June 11, 1973 is subject to the requirements of Subpart I.

The affected facility includes: the dryer; systems for screening, handling, storing, and weighing hot aggregate; systems for loading, transferring, and storing mineral filler; systems for mixing hot mix asphalt; and the loading, transfer, and storage systems associated with emission control systems.

§ 60.91…….. Definitions

This section contains the definitions of this subpart.

§ 60.92…….. Standard for particulate matter

In accordance with §60.92, no owner or operator shall discharge or cause the discharge into the atmosphere from any affected facility any gases which contain particulate matter in excess of 0.04 gr/dscf or exhibit 20% opacity or greater. Permit Condition 3.4 includes the requirements of this section.

§ 60.93…….. Test methods and procedures

In accordance with §60.93(a), performance tests shall use as reference methods and procedures the test methods in Appendix A of 40 CFR 60.

In accordance with §60.93(b), compliance with the particulate matter standards shall be determined by EPA Reference Method 5, and opacity shall be determined by EPA Reference Method 9. Permit Conditions 3.13 and 3.14 includes the requirements of this section.

DEQ has been delegated authority to this subpart.

40 CFR 60, Subpart IIII **Standards of Performance for Stationary Compression Ignition Internal Combustion Engines**

This permitting action is for a new asphalt plant. Included in the proposed permitted equipment are two diesel-fired IC engines, the Primary IC Engine and the Secondary IC Engine. Therefore, the requirements of this subpart may apply.

§ 60.4200…….. Am I subject to this subpart?

(a) The provisions of this subpart are applicable to manufacturers, owners, and operators of stationary compression ignition (CI) internal combustion engines (ICE) as specified in paragraphs (a)(1) through (3) of this section. For the purposes of this subpart, the date that construction commences is the date the engine is ordered by the owner or operator.

(1) Manufacturers of stationary CI ICE with a displacement of less than 30 liters per cylinder where the model year is:

- *(i) 2007 or later, for engines that are not fire pump engines,*
- *(ii) The model year listed in table 3 to this subpart or later model year, for fire pump engines.*

(2) Owners and operators of stationary CI ICE that commence construction after July 11, 2005 where the stationary CI ICE are:

- *(i) Manufactured after April 1, 2006 and are not fire pump engines, or*
- *(ii) Manufactured as a certified National Fire Protection Association (NFPA) fire pump engine after July 1, 2006.*

(3) Owners and operators of stationary CI ICE that modify or reconstruct their stationary CI ICE after July 11, 2005.

(4) The provisions of §60.4208 of this subpart are applicable to all owners and operators of stationary CI ICE that commence construction after July 11, 2005.

(b) The provisions of this subpart are not applicable to stationary CI ICE being tested at a stationary CI ICE test cell/stand.

(c) If you are an owner or operator of an area source subject to this subpart, you are exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71, provided you are not required to obtain a permit under 40 CFR 70.3(a) or 40 CFR 71.3(a) for a reason other than your status as an area source under this subpart. Notwithstanding the previous sentence, you must continue to comply with the provisions of this subpart applicable to area sources.

(d) Stationary CI ICE may be eligible for exemption from the requirements of this subpart as described in 40 CFR part 1068, subpart C (or the exemptions described in 40 CFR part 89, subpart J and 40 CFR part 94, subpart J, for engines that would need to be certified to standards in those parts), except that owners and operators, as well as manufacturers, may be eligible to request an exemption for national security.

(e) Owners and operators of facilities with CI ICE that are acting as temporary replacement units and that are located at a stationary source for less than 1 year and that have been properly certified as meeting the standards that would be applicable to such engine under the appropriate nonroad engine provisions, are not required to meet any other provisions under this subpart with regard to such engines.

The Primary IC Engine was manufactured in 2004 and the Secondary IC Engine was manufactured in 1995 and both have not been modified or reconstructed. Therefore, the requirements of this subpart are not applicable to the two diesel-fired IC engines proposed by the applicant.

NESHAP Applicability (40 CFR 61)

The facility is not subject to any NESHAP requirements in 40 CFR 61.

MACT Applicability (40 CFR 63)

Because the facility has two compression ignition IC engines the following NESHAP Subpart may be applicable:

- 40 CFR 60, Subpart ZZZZ - National Emission Standard for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

DEQ has been delegated authority to this subpart.

Those sections that are applicable are highlighted.

40 CFR 63, Subpart ZZZZ	**National Emission Standard for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines**
§ 63.6580…….	*What is the purpose of subpart ZZZZ?*

Subpart ZZZZ establishes national emission limitations and operating limitations for hazardous air pollutants (HAP) emitted from stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and operating limitations. As demonstrated previously in the Emissions Inventories Section of this analysis this facility is an area source for HAPs as the potential to emit for HAPs is 0.25 T/yr. Therefore, the engines at this facility may be subject to the requirements of Subpart ZZZZ.

§ 63.6585…… *What is the purpose of subpart ZZZZ?*

You are subject to this subpart if you own or operate a stationary RICE at a major or area source of HAP emissions, except if the stationary RICE is being tested at a stationary RICE test cell/stand.

(a) A stationary RICE is any internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work and which is not mobile. Stationary RICE differ from mobile RICE in that a stationary RICE is not a non-road engine as defined at 40 CFR 1068.30, and is not used to propel a motor vehicle or a vehicle used solely for competition.

(b) A major source of HAP emissions is a plant site that emits or has the potential to emit any single HAP at a rate of 10 tons (9.07 megagrams) or more per year or any combination of HAP at a rate of 25 tons (22.68 megagrams) or more per year, except that for oil and gas production facilities, a major source of HAP emissions is determined for each surface site.

(c) An area source of HAP emissions is a source that is not a major source.

(d) If you are an owner or operator of an area source subject to this subpart, your status as an entity subject to a standard or other requirements under this subpart does not subject you to the obligation to obtain a permit under 40 CFR part 70 or 71, provided you are not required to obtain a permit under 40 CFR 70.3(a) or 40 CFR 71.3(a) for a reason other than your status as an area source under this subpart. Notwithstanding the previous sentence, you must continue to comply with the provisions of this subpart as applicable.

(e) If you are an owner or operator of a stationary RICE used for national security purposes, you may be eligible to request an exemption from the requirements of this subpart as described in 40 CFR part 1068, subpart C.

§ 63.6590…….. What parts of my plant does this subpart cover?

This subpart applies to each affected source.

*Section (a) defines an affected source as any **existing, new, or reconstructed stationary** RICE located at a major or area source of HAP emissions, excluding stationary RICE being tested at a stationary RICE test cell/stand.*

*Sections (1)(i) through (1)(iv) defines **existing** stationary RICE as the following:*

> *For stationary RICE with a site rating of more than 500 brake horsepower (bhp) located at a major source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before December 19, 2002.*
>
> *For stationary RICE with a site rating of less than or equal to 500 brake bhp located at a major source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before June 12, 2006.*
>
> *For stationary RICE located at an area source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before June 12, 2006.*
>
> *A change in ownership of an existing stationary RICE does not make that stationary RICE a new or reconstructed stationary RICE.*

*Sections (2)(i) through (2)(iii) defines **new** stationary RICE as the following:*

> *A stationary RICE with a site rating of more than 500 bhp located at a major source of HAP emissions is new if you commenced construction of the stationary RICE on or after December 19, 2002.*
>
> *A stationary RICE with a site rating of equal to or less than 500 bhp located at a major source of HAP emissions is new if you commenced construction of the stationary RICE on or after June 12, 2006.*
>
> *A stationary RICE located at an area source of HAP emissions is new if you commenced construction of the stationary RICE on or after June 12, 2006.*

*Section (3)(i) through (2)(iii) defines **reconstructed** stationary RICE as the following:*

> *A stationary RICE with a site rating of more than 500 bhp located at a major source of HAP emissions is reconstructed if you meet the definition of reconstruction in §63.2 and reconstruction is commenced on or after December 19, 2002.*
>
> *A stationary RICE with a site rating of equal to or less than 500 bhp located at a major source of HAP emissions is reconstructed if you meet the definition of reconstruction in §63.2 and reconstruction is commenced on or after June 12, 2006.*
>
> *A stationary RICE located at an area source of HAP emissions is reconstructed if you meet the definition of reconstruction in §63.2 and reconstruction is commenced on or after June 12, 2006.*

Section (b) specifies which stationary RICE are subject to limited requirements of this subpart. An affected source which meets either of the criteria in paragraphs (b)(1)(i) through (ii) of this section does not have to meet the requirements of this subpart and of subpart A of this part except for the initial notification requirements of §63.6645(f). The requirements of (b)(1)(i) through (ii) are as follows:

The stationary RICE is a new or reconstructed emergency stationary RICE with a site rating of more than 500 bhp located at a major source of HAP emissions.

The stationary RICE is a new or reconstructed limited use stationary RICE with a site rating of more than 500 bhp located at a major source of HAP emissions.

Section (2) specifies that a new or reconstructed stationary RICE with a site rating of more than 500 bhp located at a major source of HAP emissions which combusts landfill or digester gas equivalent to 10% or more of the gross heat input on an annual basis must meet the initial notification requirements of §63.6645(f) and the requirements of §§63.6625(c), 63.6650(g), and 63.6655(c). These stationary RICE do not have to meet the emission limitations and operating limitations of this subpart.

Section (3) allows that the following stationary RICE do not have to meet the requirements of this subpart and of subpart A of this part, including initial notification requirements:

Existing spark ignition 2-stroke lean-burn (2SLB) stationary RICE with a site rating of more than 500 bhp located at a major source of HAP emissions;

Existing spark ignition 4-stroke lean burn (4SLB) stationary RICE with a site rating of more than 500 bhp located at a major source of HAP emissions;

Existing emergency stationary RICE with a site rating of more than 500 bhp located at a major source of HAP emissions;

Existing limited use stationary RICE with a site rating of more than 500 bhp located at a major source of HAP emissions;

Existing stationary RICE with a site rating of more than 500 bhp located at a major source of HAP emissions that combusts landfill gas or digester gas equivalent to 10% or more of the gross heat input on an annual basis;

Existing residential emergency stationary RICE located at an area source of HAP emissions;

Existing commercial emergency stationary RICE located at an area source of HAP emissions; or

Existing institutional emergency stationary RICE located at an area source of HAP emissions.

As presented previously in the Emissions Units and Control Devices Section previously, the two IC engines at this facility are compression ignition stationary RICE. The Primary IC Engine has a site rating of more than 500 bhp and is located at an area source of HAP emissions (see the Emissions Inventories Section). The Secondary IC Engine has a site rating of less than 500 bhp and is located at an area of HAP emissions (see the Emissions Inventories Section). Therefore, the Primary IC Engine and the Secondary IC Engine are subject to the requirements of Subpart ZZZZ.

§ 63.6595…….. When do I have to comply with this subpart?

a) Affected sources. (1) If you have an existing stationary RICE, excluding existing non-emergency CI stationary RICE, with a site rating of more than 500 brake HP located at a major source of HAP emissions, you must comply with the applicable emission limitations and operating limitations no later than June 15, 2007. If you have an existing non-emergency CI stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, an existing stationary CI RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions, or an existing stationary CI RICE located at an area source of HAP emissions, you must comply with the applicable emission limitations and operating limitations no later than May 3, 2013. If you have an existing stationary SI RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions, or an existing stationary SI RICE located at an area source of HAP emissions, you must comply with the applicable emission limitations and operating limitations no later than October 19, 2013.

These two engines are existing stationary CI RICE located at an area source of HAP emissions. Therefore, the Primary IC Engine and the Secondary IC Engine have until May 3, 2013, to comply with the requirements of this subpart. Permit Condition 4.9 includes the requirement of this section.

§ 63.6603……..What emission limitations and operating limitations must I meet if I own or operate an existing stationary RICE located at an area source of HAP emissions?

Compliance with the numerical emission limitations established in this subpart is based on the results of testing the average of three 1-hour runs using the testing requirements and procedures in §63.6620 and Table 4 to this subpart.

*(a) If you own or operate an existing stationary RICE located at an area source of HAP emissions, you must comply with the requirements in **Table 2d** to this subpart and the operating limitations in **Table 2b** to this subpart which apply to you.*

(b) If you own or operate an existing stationary non-emergency CI RICE greater than 300 HP located at area sources in areas of Alaska not accessible by the Federal Aid Highway System (FAHS) you do not have to meet the numerical CO emission limitations specified in Table 2d to this subpart. Existing stationary non-emergency CI RICE greater than 300 HP located at area sources in areas of Alaska not accessible by the FAHS must meet the management practices that are shown for stationary non-emergency CI RICE less than or equal to 300 HP in Table 2d to this subpart.

As stated in §§63.6600, 63.6601, 63.6630, and 63.6640, you must comply with the following operating limitations for new and reconstructed 2SLB and compression ignition stationary RICE located at a major source of HAP emissions; new and reconstructed 4SLB stationary RICE ≥250 HP located at a major source of HAP emissions; existing compression ignition stationary RICE >500 HP; and existing 4SLB stationary RICE >500 HP located at an area source of HAP emissions that operate more than 24 hours per calendar year:

Table 15 - Table 2b to Subpart ZZZZ of Part 63— Operating Limitations for New and Reconstructed 2SLB and Compression Ignition Stationary RICE >500 HP Located at a Major Source of HAP Emissions, New and Reconstructed 4SLB Stationary RICE ≥250 HP Located at a Major Source of HAP Emissions, Existing Compression Ignition Stationary RICE >500 HP, and Existing 4SLB Stationary RICE >500 HP Located at an Area Source of HAP Emissions

For Each	You Must Meet the Following Operating Limitiation
2. 2SLB and 4SLB stationary RICE and CI stationary RICE complying with the requirement to reduce CO emissions and not using an oxidation catalyst; or 2SLB and 4SLB stationary RICE and CI stationary RICE complying with the requirement to limit the concentration of formaldehyde in the stationary RICE exhaust and not using an oxidation catalyst; or 4SLB stationary RICE and CI stationary RICE complying with the requirement to limit the concentration of CO in the stationary RICE exhaust and not using an oxidation catalyst	Comply with any operating limitations approved by the Administrator.

As stated in §63.6603 and §63.6640, you must comply with the following requirements for existing stationary RICE located at area sources of HAP emissions:

Table 16 - Table 2d to Subpart ZZZZ of Part 63 — Requirements for Existing Stationary RICE Located at Area Sources of HAP Emissions

For Each	You Must Meet the Following Operating Limitation	During periods of startup you must . . .
1. Non-Emergency, non-black start CI stationary RICE ≤300 HP	a. Change oil and filter every 1,000 hours of operation or annually, whichever comes first;[a] b. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first; c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.	Minimize the engine's time spent at idle and minimize the engine's startup time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply.
2. Non-Emergency, non-black start CI stationary RICE <300 HP ≤500 HP	a. Limit concentration of CO in the stationary RICE exhaust to 49 ppmvd at 15 percent O_2; or b. Reduce CO emissions by 70 percent or more.	
3. Non-Emergency, non-black start CI stationary RICE >500 HP	a. Limit concentration of CO in the stationary RICE exhaust to 23 ppmvd at 15 percent O_2; or b. Reduce CO emissions by 70 percent or more.	

[a] *Sources have the option to utilize an oil analysis program as described in §63.6625(i) in order to extend the specified oil change requirement in Table 2d of this subpart.*

[b] *If an emergency engine is operating during an emergency and it is not possible to shut down the engine in order to perform the management practice requirements on the schedule required in Table 2d of this subpart, or if performing the management practice on the required schedule would otherwise pose an unacceptable risk under Federal, State, or local law, the management practice can be delayed until the emergency is over or the unacceptable risk under Federal, State, or local law has abated. The management practice should be performed as soon as practicable after the emergency has ended or the unacceptable risk under Federal, State, or local law has abated. Sources must report any failure to perform the management practice on the schedule required and the Federal, State or local law under which the risk was deemed unacceptable.*

Permit Conditions 4.10, 4.11, 4.12, and 4.13 includes the requirements of this section.

§ 63.6604……. *What fuel requirements must I meet if I own or operate an existing stationary CI RICE?*

If you own or operate an existing non-emergency, non-black start CI stationary RICE with a site rating of more than 300 brake HP with a displacement of less than 30 liters per cylinder that uses diesel fuel, you must use diesel fuel that meets the requirements in 40 CFR 80.510(b) for non-road diesel fuel. Existing non-emergency CI stationary RICE located in Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, or at area sources in areas of Alaska not accessible by the FAHS are exempt from the requirements of this section.

Permit Condition 4.8 includes the requirements of this section.

§ 63.6605……. *What are my general requirements for complying with this subpart?*

(a) You must be in compliance with the emission limitations and operating limitations in this subpart that apply to you at all times.

(b) At all times you must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require you to make any further efforts to reduce emissions if levels required by this standard have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

This is a general permit requirement which is included in the Permit to Construct General Provisions – General Compliance.

§ 63.6612……..	*By what date must I conduct the initial performance tests or other initial compliance demonstrations if I own or operate an existing stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions or an existing stationary RICE located at an area source of HAP emissions?*

If you own or operate an existing stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions or an existing stationary RICE located at an area source of HAP emissions you are subject to the requirements of this section.

(a) You must conduct any initial performance test or other initial compliance demonstration according to Tables 4 and 5 to this subpart that apply to you within 180 days after the compliance date that is specified for your stationary RICE in §63.6595 and according to the provisions in §63.7(a)(2).

(b) An owner or operator is not required to conduct an initial performance test on a unit for which a performance test has been previously conducted, but the test must meet all of the conditions described in paragraphs (b)(1) through (4) of this section.

(1) The test must have been conducted using the same methods specified in this subpart, and these methods must have been followed correctly.

(2) The test must not be older than 2 years.

(3) The test must be reviewed and accepted by the Administrator.

(4) Either no process or equipment changes must have been made since the test was performed, or the owner or operator must be able to demonstrate that the results of the performance test, with or without adjustments, reliably demonstrate compliance despite process or equipment changes.

As stated in §§63.6610, 63.6611, 63.6612, 63.6620, and 63.6640, you must comply with the following requirements for performance tests for stationary RICE:

Table 17 - Table 4 to Subpart ZZZZ of Part 63—Requirements for Performance Tests

For Each..	Complying with the requirement to . . .	You must . . .	Using . . .	According to the following requirements . . .
1. 2SLB, 4SLB, and CI stationary RICE	a. Reduce CO emissions	i. Measure the O_2 at the inlet and outlet of the control device; and	(1) Portable CO and O_2 analyzer	(a) Using ASTM D6522–00 (2005) a(incorporated by reference, see §63.14). Measurements to determine O_2 must be made at the same time as the measurements for CO concentration.
		ii. Measure the CO at the inlet and the outlet of the control device	(1) Portable CO and O_2 analyzer	(a) Using ASTM D6522–00 (2005) ab(incorporated by reference, see §63.14) or Method 10 of 40 CFR appendix A. The CO concentration must be at 15 percent O_2, dry basis.
3. Stationary RICE	a. Limit the concentration of formaldehyde or CO in the stationary RICE exhaust	i. Select the sampling port location and the number of traverse points; and	(1) Method 1 or 1A of 40 CFR part 60, appendix A §63.7(d)(1)(i)	(a) If using a control device, the sampling site must be located at the outlet of the control device.
		ii. Determine the O_2 concentration of the stationary RICE exhaust at the sampling port location; and	(1) Method 3 or 3A or 3B of 40 CFR part 60, appendix A, or ASTM Method D6522–00 (2005)	(a) Measurements to determine O_2 concentration must be made at the same time and location as the measurements for formaldehyde concentration.
		iii. Measure moisture content of the stationary RICE exhaust at the sampling port location; and	(1) Method 4 of 40 CFR part 60, appendix A, or Test Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348–03	(a) Measurements to determine moisture content must be made at the same time and location as the measurements for formaldehyde concentration.
		iv. Measure formaldehyde at the exhaust of the stationary RICE; or	(1) Method 320 or 323 of 40 CFR part 63, appendix A; or ASTM D6348–03, [c]provided in ASTM D6348–03 Annex A5 (Analyte Spiking Technique), the percent R must be greater than or equal to 70 and less than or equal to 130	(a) Formaldehyde concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.
		v. Measure CO at the exhaust of the stationary RICE	(1) Method 10 of 40 CFR part 60, appendix A, ASTM Method D6522–00 (2005), [(a)] Method 320 of 40 CFR part 63, appendix A, or ASTM D6348–03	(a) CO Concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour longer runs.

a) You may also use Methods 3A and 10 as options to ASTM–D6522–00 (2005). You may obtain a copy of ASTM–D6522–00 (2005) from at least one of the following addresses: American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428–2959, or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106. ASTM–D6522–00 (2005) may be used to test both CI and SI stationary RICE.

b) You may also use Method 320 of 40 CFR part 63, appendix A, or ASTM D6348–03.

c) You may obtain a copy of ASTM–D6348–03 from at least one of the following addresses: American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428–2959, or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106.

Permit Conditions 4.13 and 4.15 includes the requirements of this section.

§ 63.6615…….. When must I conduct subsequent performance tests?

If you must comply with the emission limitations and operating limitations, you must conduct subsequent performance tests as specified in Table 3 of this subpart.

Table 18 - Table 3 to Subpart ZZZZ of Part 63—Subsequent Performance Tests

For Each	You Must Meet the Following Operating Limitation	During periods of startup you must . . .
4. Existing non-emergency, non-black start CI stationary RICE with a brake horsepower >500 that are not limited use stationary RICE; existing non-emergency, non-black start 4SLB and 4SRB stationary RICE located at an area source of HAP emissions with a brake horsepower >500 that are operated more than 24 hours per calendar year that are not limited use stationary RICE	Limit or reduce CO or formaldehyde emissions	Conduct subsequent performance tests every 8,760 hrs. or 3 years, whichever comes first.

Permit Condition 4.16 includes the requirements of this section.

§ 63.6620…….. What performance tests and other procedures must I use?

(a) You must conduct each performance test in Tables 3 and 4 of this subpart that applies to you.

(b) Each performance test must be conducted according to the requirements that this subpart specifies in Table 4 to this subpart. If you own or operate a non-operational stationary RICE that is subject to performance testing, you do not need to start up the engine solely to conduct the performance test. Owners and operators of a non-operational engine can conduct the performance test when the engine is started up again.

(d) You must conduct three separate test runs for each performance test required in this section, as specified in §63.7(e)(3). Each test run must last at least 1 hour.

(e)(1) You must use Equation 1 of this section to determine compliance with the percent reduction requirement:

$$[(C_i - C_o) \div C_i] \times 100 = R \quad \text{(Eq. 1)}$$

Where:

C_i *= concentration of CO or formaldehyde at the control device inlet,*

C_o *= concentration of CO or formaldehyde at the control device outlet, and*

R *= percent reduction of CO or formaldehyde emissions.*

(2) You must normalize the carbon monoxide (CO) or formaldehyde concentrations at the inlet and outlet of the control device to a dry basis and to 15 percent oxygen, or an equivalent percent carbon dioxide (CO_2). If pollutant concentrations are to be corrected to 15 percent oxygen and CO_2 concentration is measured in lieu of oxygen concentration measurement, a CO_2 correction factor is needed. Calculate the CO_2 correction factor as described in paragraphs (e)(2)(i) through (iii) of this section.

(i) Calculate the fuel-specific F_o value for the fuel burned during the test using values obtained from Method 19, section 5.2, and the following equation:

$$F_o = (0.209 \times F_d) \div F_c \quad \text{(Eq. 2)}$$

Where:

F_o = Fuel factor based on the ratio of oxygen volume to the ultimate CO_2 volume produced by the fuel at zero percent excess air.

0.209 = Fraction of air that is oxygen, percent/100.

F_d = Ratio of the volume of dry effluent gas to the gross calorific value of the fuel from Method 19, dsm3 /J (dscf/106 Btu).

F_c = Ratio of the volume of CO_2 produced to the gross calorific value of the fuel from Method 19, dsm3 /J (dscf/106 Btu).

(ii) Calculate the CO_2 correction factor for correcting measurement data to 15 percent oxygen, as follows:

$X_{CO2} = 5.9 \div F_o$ (Eq. 3)

Where:

X_{CO2} = CO_2 correction factor, percent.

5.9 = 20.9 percent O_2 − 15 percent O_2, the defined O_2 correction value, percent.

(iii) Calculate the NO_X and SO_2 gas concentrations adjusted to 15 percent O_2 using CO_2 as follows:

$C_{adj} = C_d$ x ($X_{CO2} \div \%CO_2$ (Eq. 4)

Where:

$\%CO_2$ = Measured CO_2 concentration measured, dry basis, percent.

Permit Condition 4.17 includes the requirements of this section.

(f) If you comply with the emission limitation to reduce CO and you are not using an oxidation catalyst, if you comply with the emission limitation to reduce formaldehyde and you are not using NSCR, or if you comply with the emission limitation to limit the concentration of formaldehyde in the stationary RICE exhaust and you are not using an oxidation catalyst or NSCR, you must petition the Administrator for operating limitations to be established during the initial performance test and continuously monitored thereafter; or for approval of no operating limitations. You must not conduct the initial performance test until after the petition has been approved by the Administrator.

(g) If you petition the Administrator for approval of operating limitations, your petition must include the information described in paragraphs (g)(1) through (5) of this section.

(1) Identification of the specific parameters you propose to use as operating limitations;

(2) A discussion of the relationship between these parameters and HAP emissions, identifying how HAP emissions change with changes in these parameters, and how limitations on these parameters will serve to limit HAP emissions;

(3) A discussion of how you will establish the upper and/or lower values for these parameters which will establish the limits on these parameters in the operating limitations;

(4) A discussion identifying the methods you will use to measure and the instruments you will use to monitor these parameters, as well as the relative accuracy and precision of these methods and instruments; and

(5) A discussion identifying the frequency and methods for recalibrating the instruments you will use for monitoring these parameters.

(h) If you petition the Administrator for approval of no operating limitations, your petition must include the information described in paragraphs (h)(1) through (7) of this section.

(1) Identification of the parameters associated with operation of the stationary RICE and any emission control device which could change intentionally (e.g., operator adjustment, automatic controller adjustment, etc.) or unintentionally (e.g., wear and tear, error, etc.) on a routine basis or over time;

(2) A discussion of the relationship, if any, between changes in the parameters and changes in HAP emissions;

(3) For the parameters which could change in such a way as to increase HAP emissions, a discussion of whether establishing limitations on the parameters would serve to limit HAP emissions;

(4) For the parameters which could change in such a way as to increase HAP emissions, a discussion of how you could establish upper and/or lower values for the parameters which would establish limits on the parameters in operating limitations;

(5) For the parameters, a discussion identifying the methods you could use to measure them and the instruments you could use to monitor them, as well as the relative accuracy and precision of the methods and instruments;

(6) For the parameters, a discussion identifying the frequency and methods for recalibrating the instruments you could use to monitor them; and

(7) A discussion of why, from your point of view, it is infeasible or unreasonable to adopt the parameters as operating limitations.

(i) The engine percent load during a performance test must be determined by documenting the calculations, assumptions, and measurement devices used to measure or estimate the percent load in a specific application. A written report of the average percent load determination must be included in the notification of compliance status. The following information must be included in the written report: the engine model number, the engine manufacturer, the year of purchase, the manufacturer's site-rated brake horsepower, the ambient temperature, pressure, and humidity during the performance test, and all assumptions that were made to estimate or calculate percent load during the performance test must be clearly explained. If measurement devices such as flow meters, kilowatt meters, beta analyzers, stain gauges, etc. are used, the model number of the measurement device, and an estimate of its accurate in percentage of true value must be provided.

Permit Condition 4.18 includes the requirements of this section.

§ 63.6625…….. *What are my monitoring, installation, collection, operation, and maintenance requirements?*

(a) If you elect to install a CEMS as specified in Table 5 of this subpart, you must install, operate, and maintain a CEMS to monitor CO and either oxygen or CO_2 at both the inlet and the outlet of the control device according to the requirements in paragraphs (a)(1) through (4) of this section.

(1) Each CEMS must be installed, operated, and maintained according to the applicable performance specifications of 40 CFR part 60, appendix B.

(2) You must conduct an initial performance evaluation and an annual relative accuracy test audit (RATA) of each CEMS according to the requirements in §63.8 and according to the applicable performance specifications of 40 CFR part 60, appendix B as well as daily and periodic data quality checks in accordance with 40 CFR part 60, appendix F, procedure 1.

(3) As specified in §63.8(c)(4)(ii), each CEMS must complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period. You must have at least two data points, with each representing a different 15-minute period, to have a valid hour of data.

(4) The CEMS data must be reduced as specified in §63.8(g)(2) and recorded in parts per million or parts per billion (as appropriate for the applicable limitation) at 15 percent oxygen or the equivalent CO_2 concentration.

Permit Condition 4.19 includes the requirements of this section.

(b) If you are required to install a continuous parameter monitoring system (CPMS) as specified in Table 5 of this subpart, you must install, operate, and maintain each CPMS according to the requirements in paragraphs (b)(1) through (8) of this section.

(1) The CPMS must complete a minimum of one cycle of operation for each successive 15-minute period. You must have a minimum of four successive cycles of operation to have a valid hour of data.

(2) Except for monitoring malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), you must conduct all monitoring in continuous operation at all times that the unit is operating. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.

(3) For purposes of calculating data averages, you must not use data recorded during monitoring malfunctions, associated repairs, out of control periods, or required quality assurance or control activities. You must use all the data collected during all other periods in assessing compliance. Any 15-minute period for which the monitoring system is out-of-control and data are not available for required calculations constitutes a deviation from the monitoring requirements.

(4) Determine the 3-hour block average of all recorded readings, except as provided in paragraph (b)(3) of this section.

(5) Record the results of each inspection, calibration, and validation check.

(6) You must develop a site-specific monitoring plan that addresses paragraphs (b)(6)(i) through (vi) of this section.

(i) Installation of the CPMS sampling probe or other interface at the appropriate location to obtain representative measurements;

(ii) Performance and equipment specifications for the sample interface, parametric signal analyzer, and the data collection and reduction systems;

(iii) Performance evaluation procedures and acceptance criteria (e.g., calibrations);

(iv) Ongoing operation and maintenance procedures in accordance with the general requirements of §63.8(c)(1), (c)(3), and (c)(4)(ii);

(v) Ongoing data quality assurance procedures in accordance with the general requirements of §63.8(d); and

(vi) Ongoing recordkeeping and reporting procedures in accordance with the general requirements of §63.10(c), (e)(1), and (e)(2)(i).

(7) You must conduct a performance evaluation of each CPMS in accordance with your site-specific monitoring plan.

(8) You must operate and maintain the CPMS in continuous operation according to the site-specific monitoring plan.

The applicant has proposed an engine rated at more than 500 bhp but has proposed a CEMS. Therefore a CPMS is not required. Therefore, this section is not applicable.

(c) If you are operating a new or reconstructed stationary RICE which fires landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, you must monitor and record your fuel usage daily with separate fuel meters to measure the volumetric flow rate of each fuel. In addition, you must operate your stationary RICE in a manner which reasonably minimizes HAP emissions.

The applicant has not proposed to fire the engines included in the application on landfill or digester gas. Therefore, this section is not applicable.

(d) If you are operating a new or reconstructed emergency 4SLB stationary RICE with a site rating of greater than or equal to 250 and less than or equal to 500 brake HP located at a major source of HAP emissions, you must install a non-resettable hour meter prior to the startup of the engine.

The applicant has not proposed any 4SLB engines in the application. Therefore, this section is not applicable.

(e) If you own or operate any of the following stationary RICE, you must operate and maintain the stationary RICE and after-treatment control device (if any) according to the manufacturer's emission-related written instructions or develop your own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions:

(1) An existing stationary RICE with a site rating of less than 100 HP located at a major source of HAP emissions;

(2) An existing emergency or black start stationary RICE with a site rating of less than or equal to 500 HP located at a major source of HAP emissions;

(3) An existing emergency or black start stationary RICE located at an area source of HAP emissions;

(4) An existing non-emergency, non-black start stationary CI RICE with a site rating less than or equal to 300 HP located at an area source of HAP emissions;

The applicant has proposed non-emergency, non-black start stationary CI RICE with a site rating less than or equal to 300 HP located at an area source of HAP emissions in the application. Therefore, this section is applicable.

(5) An existing non-emergency, non-black start 2SLB stationary RICE located at an area source of HAP emissions;

(6) An existing non-emergency, non-black start landfill or digester gas stationary RICE located at an area source of HAP emissions;

(7) An existing non-emergency, non-black start 4SLB stationary RICE with a site rating less than or equal to 500 HP located at an area source of HAP emissions;

(8) An existing non-emergency, non-black start 4SRB stationary RICE with a site rating less than or equal to 500 HP located at an area source of HAP emissions;

(9) An existing, non-emergency, non-black start 4SLB stationary RICE with a site rating greater than 500 HP located at an area source of HAP emissions that is operated 24 hours or less per calendar year; and

(10) An existing, non-emergency, non-black start 4SRB stationary RICE with a site rating greater than 500 HP located at an area source of HAP emissions that is operated 24 hours or less per calendar year.

(f) If you own or operate an existing emergency stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions or an existing emergency stationary RICE located at an area source of HAP emissions, you must install a non-resettable hour meter if one is not already installed.

(g) If you own or operate an existing non-emergency, non-black start CI engine greater than or equal to 300 HP that is not equipped with a closed crankcase ventilation system, you must comply with either paragraph (g)(1) or paragraph (g)(2) of this section. Owners and operators must follow the manufacturer's specified maintenance requirements for operating and maintaining the open or closed crankcase ventilation systems and replacing the crankcase filters, or can request the Administrator to approve different maintenance requirements that are as protective as manufacturer requirements. Existing CI engines located at area sources in areas of Alaska not accessible by the FAHS do not have to meet the requirements of paragraph (g) of this section.

(1) Install a closed crankcase ventilation system that prevents crankcase emissions from being emitted to the atmosphere, or

(2) Install an open crankcase filtration emission control system that reduces emissions from the crankcase by filtering the exhaust stream to remove oil mist, particulates, and metals.

Permit Condition 4.21 includes the requirements of this section.

(h) If you operate a new, reconstructed, or existing stationary engine, you must minimize the engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the emission standards applicable to all times other than startup in Tables 1a, 2a, 2c, and 2d to this subpart apply.

As discussed previously Permit Condition 4.10 includes the requirements of this section.

(i) If you own or operate a stationary CI engine that is subject to the work, operation or management practices in items 1 or 2 of Table 2c to this subpart or in items 1 or 4 of Table 2d to this subpart, you have the option of utilizing an oil analysis program in order to extend the specified oil change requirement in Tables 2c and 2d to this subpart. The oil analysis must be performed at the same frequency specified for changing the oil in Table 2c or 2d to this subpart. The analysis program must at a minimum analyze the following three parameters: Total Base Number, viscosity, and percent water content. The condemning limits for these parameters are as follows: Total Base Number is less than 30 percent of the Total Base Number of the oil when new; viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new; or percent water content (by volume) is greater than 0.5. If all of these condemning limits are not exceeded, the engine owner or operator is not required to change the oil. If any of the limits are exceeded, the engine owner or operator must change the oil within 2 days of receiving the results of the analysis; if the engine is not in operation when the results of the analysis are received, the engine owner or operator must change the oil within 2 days or before commencing operation, whichever is later. The owner or operator must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine.

Permit Condition 4.12 includes the requirements of this section.

(j) If you own or operate a stationary SI engine that is subject to the work, operation or management practices in items 6, 7, or 8 of Table 2c to this subpart or in items 5, 6, 7, 9, or 11 of Table 2d to this subpart, you have the option of utilizing an oil analysis program in order to extend the specified oil change requirement in Tables 2c and 2d to this subpart. The oil analysis must be performed at the same frequency specified for changing the oil in Table 2c or 2d to this subpart. The analysis program must at a minimum analyze the following three parameters: Total Acid Number, viscosity, and percent water content. The condemning limits for these parameters are as follows: Total Acid Number increases by more than 3.0 milligrams of potassium hydroxide (KOH) per gram from Total Acid Number of the oil when new; viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new; or percent water content (by volume) is greater than 0.5. If all of these condemning limits are not exceeded, the engine owner or operator is not required to change the oil. If any of the limits are exceeded, the engine owner or operator must change the oil within 2 days of receiving the results of the analysis; if the engine is not in operation when the results of the analysis are received, the engine owner or operator must change the oil within 2 days or before commencing operation, whichever is later. The owner or operator must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine.

The applicant has not proposed a SI engine for this application. Therefore, the requirements of this Section are not applicable to the two IC engines proposed for this project.

(k) If you have an operating limitation that requires the use of a temperature measurement device, you must meet the requirements in paragraphs (k)(1) through (4) of this section.

(1) Locate the temperature sensor and other necessary equipment in a position that provides a representative temperature.

(2) Use a temperature sensor with a minimum tolerance of 2.8 degrees Celsius (5 degrees Fahrenheit), or 1.0 percent of the temperature value, whichever is larger, for a non-cryogenic temperature range.

(3) Use a temperature sensor with a minimum tolerance of 2.8 degrees Celsius (5 degrees Fahrenheit), or 2.5 percent of the temperature value, whichever is larger, for a cryogenic temperature range.

(4) Conduct a temperature measurement device calibration check at least every 3 months.

§ 63.6630……. *How do I demonstrate initial compliance with the emission limitations and operating limitations?*

*(a) You must demonstrate initial compliance with each emission and operating limitation that applies to you according to **Table 5** of this subpart.*

(b) During the initial performance test, you must establish each operating limitation in Tables 1b and 2b of this subpart that applies to you.

(c) You must submit the Notification of Compliance Status containing the results of the initial compliance demonstration according to the requirements in §63.6645.

Table 19 - Table 5 to Subpart ZZZZ of Part 63—Initial Compliance With Emission Limitations and Operating Limitations

For Each	Complying with the requirement to . . .	You have demonstrated initial compliance if . . .
6. Non-emergency stationary CI RICE >500 HP located at a major source of HAP, existing non-emergency stationary CI RICE >500 HP located at an area source of HAP, and existing non-emergency 4SLB stationary RICE >500 HP located at an area source of HAP that are operated more than 24 hours per calendar year	a. Limit the concentration of CO, and using a CEMS	i. You have installed a CEMS to continuously monitor CO and either O_2 or CO_2 at the outlet of the oxidation catalyst according to the requirements in §63.6625(a); and ii. You have conducted a performance evaluation of your CEMS using PS 3 and 4A of 40 CFR part 60, appendix B; and iii. The average concentration of CO calculated using §63.6620 is less than or equal to the CO emission limitation. The initial test comprises the first 4-hour period after successful validation of the CEMS. Compliance is based on the average concentration measured during the 4-hour period.

The applicant has proposed to establish parameters for establishing the CO emissions limitation when using an oxidation catalyst and a CEMS for the Primary IC Engine as required by this section. Permit Condition 4.22 includes the requirements of this section.

§ 63.6640……. *How do I demonstrate continuous compliance with the emission limitations and operating limitations?*

(a) You must demonstrate continuous compliance with each emission limitation and operating limitation in Tables 1a and 1b, Tables 2a and 2b, Table 2c, and Table 2d to this subpart that apply to you according to methods specified in Table 6 to this subpart.

(b) You must report each instance in which you did not meet each emission limitation or operating limitation in Tables 1a and 1b, Tables 2a and 2b, Table 2c, and Table 2d to this subpart that apply to you. These instances are deviations from the emission and operating limitations in this subpart. These deviations must be reported according to the requirements in §63.6650. If you change your catalyst, you must reestablish the values of the operating parameters measured during the initial performance test. When you reestablish the values of your operating parameters, you must also conduct a performance test to demonstrate that you are meeting the required emission limitation applicable to your stationary RICE.

(c) [Reserved]

(d) For new, reconstructed, and rebuilt stationary RICE, deviations from the emission or operating limitations that occur during the first 200 hours of operation from engine startup (engine burn-in period) are not violations. Rebuilt stationary RICE means a stationary RICE that has been rebuilt as that term is defined in 40 CFR 94.11(a).

(e) You must also report each instance in which you did not meet the requirements in Table 8 to this subpart that apply to you. If you own or operate a new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions (except new or reconstructed 4SLB engines greater than or equal to 250 and less than or equal to 500 brake HP), a new or reconstructed stationary RICE located at an area source of HAP emissions, or any of the following RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you do not need to comply with the requirements in Table 8 to this subpart: An existing 2SLB stationary RICE, an existing 4SLB stationary RICE, an existing emergency stationary RICE, an existing limited use stationary RICE, or an existing stationary RICE which fires landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis. If you own or operate any of the following RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you do not need to comply with the requirements in Table 8 to this subpart, except for the initial notification requirements: a new or reconstructed stationary RICE that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, a new or reconstructed emergency stationary RICE, or a new or reconstructed limited use stationary RICE.

(f) Requirements for emergency stationary RICE. (1) If you own or operate an existing emergency stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions, a new or reconstructed emergency stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions that was installed on or after June 12, 2006, or an existing emergency stationary RICE located at an area source of HAP emissions, you must operate the emergency stationary RICE according to the requirements in paragraphs (f)(1)(i) through (iii) of this section. Any operation other than emergency operation, maintenance and testing, and operation in non-emergency situations for 50 hours per year, as described in paragraphs (f)(1)(i) through (iii) of this section, is prohibited. If you do not operate the engine according to the requirements in paragraphs (f)(1)(i) through (iii) of this section, the engine will not be considered an emergency engine under this subpart and will need to meet all requirements for non-emergency engines.

(i) There is no time limit on the use of emergency stationary RICE in emergency situations.

(ii) You may operate your emergency stationary RICE for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by Federal, State or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Maintenance checks and readiness testing of such units is limited to 100 hours per year. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that Federal, State, or local standards require maintenance and testing of emergency RICE beyond 100 hours per year.

(iii) You may operate your emergency stationary RICE up to 50 hours per year in non-emergency situations, but those 50 hours are counted towards the 100 hours per year provided for maintenance and testing. The 50 hours per year for non-emergency situations cannot be used for peak shaving or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity; except that owners and operators may operate the emergency engine for a maximum of 15 hours per year as part of a demand response program if the regional transmission organization or equivalent balancing authority and transmission operator has determined there are emergency conditions that could lead to a potential electrical blackout, such as unusually low frequency, equipment overload, capacity or energy deficiency, or unacceptable voltage level. The engine may not be operated for more than 30 minutes prior to the time when the emergency condition is expected to occur, and the engine operation must be terminated immediately after the facility is notified that the emergency condition is no longer imminent. The 15 hours per year of demand response operation are counted as part of the 50 hours of operation per year provided for non-emergency situations. The supply of emergency power to another entity or entities pursuant to financial arrangement is not limited by this paragraph (f)(1)(iii), as long as the power provided by the financial arrangement is limited to emergency power.

(2) If you own or operate an emergency stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions that was installed prior to June 12, 2006, you must operate the engine according to the conditions described in paragraphs (f)(2)(i) through (iii) of this section. If you do not operate the engine according to the requirements in paragraphs (f)(2)(i) through (iii) of this section, the engine will not be considered an emergency engine under this subpart and will need to meet all requirements for non-emergency engines.

(i) There is no time limit on the use of emergency stationary RICE in emergency situations.

(ii) You may operate your emergency stationary RICE for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by the manufacturer, the vendor, or the insurance company associated with the engine. Required testing of such units should be minimized, but there is no time limit on the use of emergency stationary RICE in emergency situations and for routine testing and maintenance.

(iii) You may operate your emergency stationary RICE for an additional 50 hours per year in non-emergency situations. The 50 hours per year for non-emergency situations cannot be used for peak shaving or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

The applicant has not proposed emergency stationary RICE for this project. Therefore, the requirements of this Section are not applicable to the two IC engines proposed for this project.

§ 63.6645…….. What notifications must I submit and when?

(a) You must submit all of the notifications in §§63.7(b) and (c), 63.8(e), (f)(4) and (f)(6), 63.9(b) through (e), and (g) and (h) that apply to you by the dates specified if you own or operate any of the following;

(1) An existing stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions.

(2) An existing stationary RICE located at an area source of HAP emissions.

(3) A stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions.

(4) A new or reconstructed 4SLB stationary RICE with a site rating of greater than or equal to 250 HP located at a major source of HAP emissions.

(5) This requirement does not apply if you own or operate an existing stationary RICE less than 100 HP, an existing stationary emergency RICE, or an existing stationary RICE that is not subject to any numerical emission standards.

(b) As specified in §63.9(b)(2), if you start up your stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions before the effective date of this subpart, you must submit an Initial Notification not later than December 13, 2004.

(c) If you start up your new or reconstructed stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions on or after August 16, 2004, you must submit an Initial Notification not later than 120 days after you become subject to this subpart.

(d) As specified in §63.9(b)(2), if you start up your stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions before the effective date of this subpart and you are required to submit an initial notification, you must submit an Initial Notification not later than July 16, 2008.

(e) If you start up your new or reconstructed stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions on or after March 18, 2008 and you are required to submit an initial notification, you must submit an Initial Notification not later than 120 days after you become subject to this subpart.

(f) If you are required to submit an Initial Notification but are otherwise not affected by the requirements of this subpart, in accordance with §63.6590(b), your notification should include the information in §63.9(b)(2)(i) through (v), and a statement that your stationary RICE has no additional requirements and explain the basis of the exclusion (for example, that it operates exclusively as an emergency stationary RICE if it has a site rating of more than 500 brake HP located at a major source of HAP emissions).

Permit Condition 4.24 includes the requirements of this section.

(g) If you are required to conduct a performance test, you must submit a Notification of Intent to conduct a performance test at least 60 days before the performance test is scheduled to begin as required in §63.7(b)(1).

Permit Condition 4.16 includes the requirements of this section.

(h) If you are required to conduct a performance test or other initial compliance demonstration as specified in Tables 4 and 5 to this subpart, you must submit a Notification of Compliance Status according to §63.9(h)(2)(ii).

(1) For each initial compliance demonstration required in Table 5 to this subpart that does not include a performance test, you must submit the Notification of Compliance Status before the close of business on the 30th day following the completion of the initial compliance demonstration.

(2) For each initial compliance demonstration required in Table 5 to this subpart that includes a performance test conducted according to the requirements in Table 3 to this subpart, you must submit the Notification of Compliance Status, including the performance test results, before the close of business on the 60th day following the completion of the performance test according to §63.10(d)(2).

Permit Condition 4.16 includes the requirements of this section.

§ 63.6650…….. What reports must I submit and when?

(a) You must submit each report in Table 7 of this subpart that applies to you.

(b) Unless the Administrator has approved a different schedule for submission of reports under §63.10(a), you must submit each report by the date in Table 7 of this subpart and according to the requirements in paragraphs (b)(1) through (b)(9) of this section.

(1) For semiannual Compliance reports, the first Compliance report must cover the period beginning on the compliance date that is specified for your affected source in §63.6595 and ending on June 30 or December 31, whichever date is the first date following the end of the first calendar half after the compliance date that is specified for your source in §63.6595.

(2) For semiannual Compliance reports, the first Compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date follows the end of the first calendar half after the compliance date that is specified for your affected source in §63.6595.

(3) For semiannual Compliance reports, each subsequent Compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.

(4) For semiannual Compliance reports, each subsequent Compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period.

(5) For each stationary RICE that is subject to permitting regulations pursuant to 40 CFR part 70 or 71, and if the permitting authority has established dates for submitting semiannual reports pursuant to 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6 (a)(3)(iii)(A), you may submit the first and subsequent Compliance reports according to the dates the permitting authority has established instead of according to the dates in paragraphs (b)(1) through (b)(4) of this section.

(6) For annual Compliance reports, the first Compliance report must cover the period beginning on the compliance date that is specified for your affected source in §63.6595 and ending on December 31.

(7) For annual Compliance reports, the first Compliance report must be postmarked or delivered no later than January 31 following the end of the first calendar year after the compliance date that is specified for your affected source in §63.6595.

(8) For annual Compliance reports, each subsequent Compliance report must cover the annual reporting period from January 1 through December 31.

(9) For annual Compliance reports, each subsequent Compliance report must be postmarked or delivered no later than January 31.

(c) The Compliance report must contain the information in paragraphs (c)(1) through (6) of this section.

(1) Company name and address.

(2) Statement by a responsible official, with that official's name, title, and signature, certifying the accuracy of the content of the report.

(3) Date of report and beginning and ending dates of the reporting period.

(4) If you had a malfunction during the reporting period, the compliance report must include the number, duration, and a brief description for each type of malfunction which occurred during the reporting period and which caused or may have caused any applicable emission limitation to be exceeded. The report must also include a description of actions taken by an owner or operator during a malfunction of an affected source to minimize emissions in accordance with §63.6605(b), including actions taken to correct a malfunction.

(5) If there are no deviations from any emission or operating limitations that apply to you, a statement that there were no deviations from the emission or operating limitations during the reporting period.

(6) If there were no periods during which the continuous monitoring system (CMS), including CEMS and CPMS, was out-of-control, as specified in §63.8(c)(7), a statement that there were no periods during which the CMS was out-of-control during the reporting period.

(d) For each deviation from an emission or operating limitation that occurs for a stationary RICE where you are not using a CMS to comply with the emission or operating limitations in this subpart, the Compliance report must contain the information in paragraphs (c)(1) through (4) of this section and the information in paragraphs (d)(1) and (2) of this section.

(1) The total operating time of the stationary RICE at which the deviation occurred during the reporting period.

(2) Information on the number, duration, and cause of deviations (including unknown cause, if applicable), as applicable, and the corrective action taken.

(e) For each deviation from an emission or operating limitation occurring for a stationary RICE where you are using a CMS to comply with the emission and operating limitations in this subpart, you must include information in paragraphs (c)(1) through (4) and (e)(1) through (12) of this section.

(1) The date and time that each malfunction started and stopped.

(2) The date, time, and duration that each CMS was inoperative, except for zero (low-level) and high-level checks.

(3) The date, time, and duration that each CMS was out-of-control, including the information in §63.8(c)(8).

(4) The date and time that each deviation started and stopped, and whether each deviation occurred during a period of malfunction or during another period.

(5) A summary of the total duration of the deviation during the reporting period, and the total duration as a percent of the total source operating time during that reporting period.

(6) A breakdown of the total duration of the deviations during the reporting period into those that are due to control equipment problems, process problems, other known causes, and other unknown causes.

(7) A summary of the total duration of CMS downtime during the reporting period, and the total duration of CMS downtime as a percent of the total operating time of the stationary RICE at which the CMS downtime occurred during that reporting period.

(8) An identification of each parameter and pollutant (CO or formaldehyde) that was monitored at the stationary RICE.

(9) A brief description of the stationary RICE.

(10) A brief description of the CMS.

(11) The date of the latest CMS certification or audit.

(12) A description of any changes in CMS, processes, or controls since the last reporting period.

(f) Each affected source that has obtained a title V operating permit pursuant to 40 CFR part 70 or 71 must report all deviations as defined in this subpart in the semiannual monitoring report required by 40 CFR 70.6 (a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A). If an affected source submits a Compliance report pursuant to Table 7 of this subpart along with, or as part of, the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), and the Compliance report includes all required information concerning deviations from any emission or operating limitation in this subpart, submission of the Compliance report shall be deemed to satisfy any obligation to report the same deviations in the semiannual monitoring report. However, submission of a Compliance report shall not otherwise affect any obligation the affected source may have to report deviations from permit requirements to the permit authority.

(g) If you are operating as a new or reconstructed stationary RICE which fires landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, you must submit an annual report according to Table 7 of this subpart by the date specified unless the Administrator has approved a different schedule, according to the information described in paragraphs (b)(1) through (b)(5) of this section. You must report the data specified in (g)(1) through (g)(3) of this section.

(1) Fuel flow rate of each fuel and the heating values that were used in your calculations. You must also demonstrate that the percentage of heat input provided by landfill gas or digester gas is equivalent to 10 percent or more of the total fuel consumption on an annual basis.

(2) The operating limits provided in your federally enforceable permit, and any deviations from these limits.

(3) Any problems or errors suspected with the meters.

As stated in §63.6650, you must comply with the following requirements for reports:

Table 20 - Table 7 to Subpart ZZZZ of Part 63—Requirements for Reports

For Each..	You must submit a ...	The report must contain ...	You must submit the report ...
1. Existing non-emergency, non-black start stationary RICE 100≤HP≤500 located at a major source of HAP; existing non-emergency, non-black start stationary CI RICE >500 HP located at a major source of HAP; existing non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP; existing non-emergency, non-black start stationary CI RICE >300 HP located at an area source of HAP; existing non-emergency, non-black start 4SLB and 4SRB stationary RICE >500 HP located at an area source of HAP and operated more than 24 hours per calendar year; new or reconstructed non-emergency stationary RICE >500 HP located at a major source of HAP; and new or reconstructed non-emergency 4SLB stationary RICE 250≤HP≤500 located at a major source of HAP	Compliance report	a. If there are no deviations from any emission limitations or operating limitations that apply to you, a statement that there were no deviations from the emission limitations or operating limitations during the reporting period. If there were no periods during which the CMS, including CEMS and CPMS, was out-of-control, as specified in §63.8(c)(7), a statement that there were not periods during which the CMS was out-of-control during the reporting period; or b. If you had a deviation from any emission limitation or operating limitation during the reporting period, the information in §63.6650(d). If there were periods during which the CMS, including CEMS and CPMS, was out-of-control, as specified in §63.8(c)(7), the information in §63.6650(e); or c. If you had a malfunction during the reporting period, the information in §63.6650(c)(4)	i. Semiannually according to the requirements in §63.6650(b)(1)–(5) for engines that are not limited use stationary RICE subject to numerical emission limitations; and ii. Annually according to the requirements in §63.6650(b)(6)–(9) for engines that are limited use stationary RICE subject to numerical emission limitations. i. Semiannually according to the requirements in §63.6650(b). i. Semiannually according to the requirements in §63.6650(b).

Permit Condition 4.25 includes the requirements of this section.

§ 63.6655…….. What records must I keep?

(a) If you must comply with the emission and operating limitations, you must keep the records described in paragraphs (a)(1) through (a)(5), (b)(1) through (b)(3) and (c) of this section.

(1) A copy of each notification and report that you submitted to comply with this subpart, including all documentation supporting any Initial Notification or Notification of Compliance Status that you submitted, according to the requirement in §63.10(b)(2)(xiv).

(2) Records of the occurrence and duration of each malfunction of operation (i.e., process equipment) or the air pollution control and monitoring equipment.

(3) Records of performance tests and performance evaluations as required in §63.10(b)(2)(viii).

(4) Records of all required maintenance performed on the air pollution control and monitoring equipment.

(5) Records of actions taken during periods of malfunction to minimize emissions in accordance with §63.6605(b), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation.

(b) For each CEMS or CPMS, you must keep the records listed in paragraphs (b)(1) through (3) of this section.

(1) Records described in §63.10(b)(2)(vi) through (xi).

(2) Previous (i.e., superseded) versions of the performance evaluation plan as required in §63.8(d)(3).

(3) Requests for alternatives to the relative accuracy test for CEMS or CPMS as required in §63.8(f)(6)(i), if applicable.

(c) If you are operating a new or reconstructed stationary RICE which fires landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, you must keep the records of your daily fuel usage monitors.

(d) You must keep the records required in Table 6 of this subpart to show continuous compliance with each emission or operating limitation that applies to you.

(e) You must keep records of the maintenance conducted on the stationary RICE in order to demonstrate that you operated and maintained the stationary RICE and after-treatment control device (if any) according to your own maintenance plan if you own or operate any of the following stationary RICE;

(1) An existing stationary RICE with a site rating of less than 100 brake HP located at a major source of HAP emissions.

(2) An existing stationary emergency RICE.

(3) An existing stationary RICE located at an area source of HAP emissions subject to management practices as shown in Table 2d to this subpart.

(f) If you own or operate any of the stationary RICE in paragraphs (f)(1) or (2) of this section, you must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. The owner or operator must document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation. If the engines are used for demand response operation, the owner or operator must keep records of the notification of the emergency situation, and the time the engine was operated as part of demand response.

(1) An existing emergency stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions that does not meet the standards applicable to non-emergency engines.

(2) An existing emergency stationary RICE located at an area source of HAP emissions that does not meet the standards applicable to non-emergency engines.

Permit Condition 4.26 includes the requirements of this section.

§ 63.6660…….. In what form and how long must I keep my records?

(a) Your records must be in a form suitable and readily available for expeditious review according to §63.10(b)(1).

(b) As specified in §63.10(b)(1), you must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

(c) You must keep each record readily accessible in hard copy or electronic form for at least 5 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to §63.10(b)(1).

Permit Condition 4.26 includes the requirements of this section.

§ 63.6665…….. What parts of the General Provisions apply to me?

Table 8 to this subpart shows which parts of the General Provisions in §§63.1 through 63.15 apply to you. If you own or operate a new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions (except new or reconstructed 4SLB engines greater than or equal to 250 and less than or equal to 500 brake HP), a new or reconstructed stationary RICE located at an area source of HAP emissions, or any of the following RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you do not need to comply with any of the requirements of the General Provisions specified in Table 8: An existing 2SLB stationary RICE, an existing 4SLB stationary RICE, an existing stationary RICE that combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, an existing emergency stationary RICE, or an existing limited use stationary RICE. If you own or operate any of the following RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you do not need to comply with the requirements in the General Provisions specified in Table 8 except for the initial notification requirements: A new stationary RICE that combusts landfill gas or digester gas

equivalent to 10 percent or more of the gross heat input on an annual basis, a new emergency stationary RICE, or a new limited use stationary RICE.

Permit Condition 4.28 includes the requirements of this section.

Permit Conditions Review

This section describes the permit conditions for this initial permit or only those permit conditions that have been added, revised, modified or deleted as a result of this permitting action.

Permit Condition 1.1 establishes the permit to construct scope.

Permit Condition, Table 1.1, provides a description of the purpose of the permit and the regulated sources, the process, and the control devices used at the facility.

Facility-Wide Conditions

As discussed previously, Permit Condition 2.1 establishes that the permittee shall take all reasonable precautions to prevent fugitive particulate matter (PM) from becoming airborne and provides examples of the controls in accordance with IDAPA 58.01.01.650-651.

As discussed previously, Permit Condition 2.2 establishes that the asphalt plant shall employ efficient fugitive dust controls and provides examples of the controls in accordance with IDAPA 58.01.01.808.01 and 808.02.

Permit Condition 2.3 establishes that the asphalt plant shall not collocate with a rock crushing plant, any other asphalt plant, or a concrete batch plant as requested by the applicant.

Permit Condition 2.4 establishes that the permittee shall not relocate the permitted equipment until a PTC has been obtained that allows operation at the proposed new site. This requirement is based upon imposing reasonable permit conditions for non-portable asphalt plants.

Permit Condition 2.5 establishes that there are to be no emissions of odorous gases, liquids, or solids from the permit equipment into the atmosphere in such quantities that cause air pollution.

Permit Condition 2.6 establishes that the permittee monitor and record odor complaints to demonstrate compliance with the facility-wide permit requirements.

Permit Condition 2.7 establishes that the permittee shall maintain records as required by the Recordkeeping General Provision.

Asphalt Production Equipment

Permit Condition 3.1 provides a process description of the asphalt production process at this facility.

Permit Condition 3.2 provides a description of the control devices used on the asphalt production equipment at this facility.

Permit Condition 3.3 establishes hourly and annual emissions limits for $PM_{2.5}$, SO_2, NO_X, CO, and VOC emissions from the asphalt production operation at this facility.

As discussed previously Permit Condition 3.4 incorporates the particulate matter and opacity standards of 40 CFR 60, Subpart I – Standards of Performance for Hot Mix Asphalt Plants.

As discussed previously, Permit Condition 3.5 establishes a 20% opacity limit for the asphalt drum mixer baghouse stack, the asphaltic oil tank heater stack, the load-out station stack(s), and the silo filling slat conveyor stacks or functionally equivalent openings associated with the asphalt production operation.

Permit Condition 3.6 establishes an hourly, daily, and an annual asphalt production limit for the asphalt production operation as proposed by the applicant.

Permit Condition 3.7 establishes limits for the raw materials used in the asphalt production operation as proposed by the applicant.

Permit Condition 3.8 establishes that a wet scrubber be used to control emissions from the asphalt drum mixer as proposed by the applicant. In addition, the operating parameters provided by the applicant (as supplied by the wet scrubber manufacturer) have been included.

Permit Condition 3.9 establishes that the HMA plant will not be operated December 1st through March 31st of the following year. This requirement was requested by the applicant because this is how the plant will normally be operated and because it allowed the set-back distances, required through the Ambient Air Quality Analysis, to be less than what would be required if year-round operation was requested.

Permit Condition 3.10 establishes fuel use restrictions for combustion in the asphalt drum mixer. These fuel use restrictions were based on the fuels proposed by the applicant to be combusted in the asphalt drum mixer.

Permit Condition 3.11 establishes fuel use restrictions for combustion in the asphaltic oil tank heater. These fuel use restrictions were based on the fuels proposed by the applicant to be combusted in the asphaltic oil tank heater.

Permit Condition 3.12 establishes PM performance testing requirements as required by 40 CFR 60, Subpart I for Hot Mix Asphalt Plants.

Permit Condition 3.13 establishes PM testing methods and procedures as required by 40 CFR 60, Subpart I for Hot Mix Asphalt Plants.

Permit Condition 3.14 establishes $PM_{2.5}$ performance testing requirements required by DEQ on asphalt plants located in the state of Idaho.

Permit Condition 3.15 establishes $PM_{2.5}$ performance testing methods and procedures required by DEQ on asphalt plants located in the state of Idaho.

Permit Condition 3.16 establishes that the permittee monitor asphalt production, visible emissions, RAP percentage usage, and the fuel combusted in the asphalt drum mixer during the performance tests to establish the validity of the performance tests.

Permit Condition 3.17 establishes that the Permittee monitor and record hourly and daily asphalt production to demonstrate compliance with the Asphalt Production Limits permit condition.

Permit Condition 3.18 establishes that the Permittee calculate and record RAP use to demonstrate compliance with the Allowable Raw Materials permit condition.

Permit Condition 3.19 establishes that the Permittee shall establish monitoring requirements for operating the wet scrubber. This is a DEQ imposed standard requirement for operations using wet scrubbers to control particulate emissions.

Permit Condition 3.20 establishes that the permittee monitor distillate fuel oil shipments to demonstrate compliance with operating permit requirements.

Permit Condition 3.21 establishes that the permittee shall record daily operation of the HMA plant to demonstrate compliance with the Seasonal Operation permit requirement.

Permit Condition 3.22 establishes that the permittee shall maintain records as required by the Recordkeeping General Provision.

Permit Condition 3.23 establishes that the permittee shall submit the results of the performance tests to the appropriate DEQ office.

Permit Condition 3.24 establishes that the federal requirements of 40 CFR Part 60, Subpart I – Standards of Performance for Hot Mix Asphalt Plants, are incorporated by reference into the requirements of this permit per current DEQ guidance.

Permit Condition 3.25 incorporates 40 CFR 60, Subpart A – General Provisions.

Internal Combustion Engines

Permit Condition 4.1 provides a process description of the IC engines process at this facility.

Permit Condition 4.2 provides a description of the control devices used on the IC engines at this facility.

Permit Condition 4.3 establishes hourly and annual emissions limits for $PM_{10}/PM_{2.5}$, SO_2, NO_X, CO, and VOC emissions from the IC engines at this facility.

As discussed previously, Permit Condition 4.4 establishes a 20% opacity limit for the Primary IC Engine and the Secondary IC Engine exhaust stacks or functionally equivalent openings associated with the asphalt production operation.

Permit Condition 4.5 establishes an annual operation limit for the Primary IC Engine as proposed by the applicant.

Permit Condition 4.6 establishes an annual operation limit for the Secondary IC Engine as proposed by the applicant.

Permit Condition 4.7 establishes fuel use restrictions for combustion in the Primary IC Engine and the Secondary IC Engine. These fuel use restrictions were based on the fuel proposed by the applicant to be combusted in the Primary IC Engine and the Secondary IC Engine.

As discussed previously, Permit Condition 4.8 establishes the initial compliance date for the Primary IC Engine and the Secondary IC Engine as required by 40 CFR 63, Subpart ZZZZ for Stationary Reciprocating Internal Combustion Engines.

As discussed previously, Permit Condition 4.9 establishes startup requirements for the Primary IC Engine and the Secondary IC Engine as required by 40 CFR 63, Subpart ZZZZ for Stationary Reciprocating Internal Combustion Engines.

As discussed previously, Permit Condition 4.10 establishes maintenance requirements for the Secondary IC Engine as required by 40 CFR 63, Subpart ZZZZ for Stationary Reciprocating Internal Combustion Engines.

As discussed previously, Permit Condition 4.11 establishes alternative maintenance requirements for the Secondary IC Engine as required by 40 CFR 63, Subpart ZZZZ for Stationary Reciprocating Internal Combustion Engines.

As discussed previously, Permit Condition 4.12 establishes CO emissions measuring procedures for the Primary IC Engine as required by 40 CFR 63, Subpart ZZZZ for Stationary Reciprocating Internal Combustion Engines.

As discussed previously, Permit Condition 4.13 establishes O_2 and CO emissions measuring procedures for the Primary IC Engine as required by 40 CFR 63, Subpart ZZZZ for Stationary Reciprocating Internal Combustion Engines.

As discussed previously, Permit Condition 4.14 establishes formaldehyde or CO emissions concentration measurement requirements for the Primary IC Engine as required by 40 CFR 63, Subpart ZZZZ for Stationary Reciprocating Internal Combustion Engines.

As discussed previously, Permit Condition 4.15 establishes performance testing requirements for the Primary IC Engine as required by 40 CFR 63, Subpart ZZZZ for Stationary Reciprocating Internal Combustion Engines.

As discussed previously, Permit Condition 4.16 establishes performance emissions reductions determination requirements for the Primary IC Engine as required by 40 CFR 63, Subpart ZZZZ for Stationary Reciprocating Internal Combustion Engines.

As discussed previously, Permit Condition 4.17 establishes performance tests administrator petition requirements for the Primary IC Engine as required by 40 CFR 63, Subpart ZZZZ for Stationary Reciprocating Internal Combustion Engines.

As discussed previously, Permit Condition 4.18 requires the installation of a Continuous Emissions Monitoring System (CEMS) for the Primary IC Engine as required by 40 CFR 63, Subpart ZZZZ for Stationary Reciprocating Internal Combustion Engines.

As discussed previously, Permit Condition 4.19 establishes operational requirements for the Secondary IC Engine as required by 40 CFR 63, Subpart ZZZZ for Stationary Reciprocating Internal Combustion Engines.

As discussed previously, Permit Condition 4.20 requires the installation of a closed crankcase ventilation system or open crankcase filtration emission control system for the Primary IC Engine as required by 40 CFR 63, Subpart ZZZZ for Stationary Reciprocating Internal Combustion Engines.

As discussed previously, Permit Condition 4.21 establishes parameters for establishing the reduction in CO emissions when using an oxidation catalyst and a CEMS for the Primary IC Engine as required by 40 CFR 63, Subpart ZZZZ for Stationary Reciprocating Internal Combustion Engines.

As discussed previously, Permit Condition 4.22 establishes oxidation catalyst operation and maintenance requirements for the Primary IC Engine as required by 40 CFR 63, Subpart ZZZZ for Stationary Reciprocating Internal Combustion Engines.

As discussed previously, Permit Condition 4.23 establishes compliance notification requirements for the Primary IC Engine as required by 40 CFR 63, Subpart ZZZZ for Stationary Reciprocating Internal Combustion Engines.

As discussed previously, Permit Condition 4.24 establishes compliance notification requirements for the Primary IC Engine as required by 40 CFR 63, Subpart ZZZZ for Stationary Reciprocating Internal Combustion Engines.

As discussed previously, Permit Condition 4.25 establishes compliance recordkeeping requirements for the Primary IC Engine as required by 40 CFR 63, Subpart ZZZZ for Stationary Reciprocating Internal Combustion Engines.

Permit Condition 4.26 establishes that the federal requirements of 40 CFR Part 63, Subpart ZZZZ - National Emission Standard for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines are incorporated by reference into the requirements of this permit per current DEQ guidance.

Permit Condition 4.27 incorporates 40 CFR 60, Subpart A – General Provisions.

Permit Condition 4.28 establishes that the permittee monitor and record daily operation of the Primary IC Engine to demonstrate compliance with the Primary IC Engine Operating Limits permit condition.

Permit Condition 4.29 establishes that the permittee monitor and record daily operation of the Secondary IC Engine to demonstrate compliance with the Secondary IC Engine Operating Limits permit condition.

Permit Condition 4.30 establishes that the permittee monitor distillate fuel oil shipments to demonstrate compliance with the distillate fuel oil requirements of the permit.

Permit Condition 4.31 establishes that the permittee shall maintain records as required by the Recordkeeping General Provision.

PUBLIC REVIEW

Public Comment Opportunity

An opportunity for public comment period on the application was provided in accordance with IDAPA 58.01.01.209.01.c or IDAPA 58.01.01.404.01.c. During this time, there were comments on the application and there was a request for a public comment period on DEQ's proposed action. Refer to the chronology for public comment opportunity dates.

Public Comment Period

A public comment period was made available to the public in accordance with IDAPA 58.01.01.209.01.c. During this time, comments were submitted in response to DEQ's proposed action. Refer to the chronology for public comment period dates.

A response to public comments document has been crafted by DEQ based on comments submitted during the public comment period. That document is part of the final permit package for this permitting action.

APPENDIX A – EMISSIONS INVENTORIES

Hot Mix Asphalt EI Spreadsheet

Idaho Department of Environmental Quality, Air Quality Division, Boise, Idaho **Version 8/2/18**

Information shown in bold blue on any worksheet indicates user input for that cell. Black or blue text (normal or bold) is calculated or hard-wired -- do not type over formulas in these cells.

These worksheets were developed to expedite processing of PTC permits for Hot Mix Asphalt (HMA) facilities that are collocated with only one rock crushing plant and no other sources of emissions within 1,000 feet.

User Input:

Facility Data Input worksheet: Input facility-specific data including contact information, equipment ratings, proposed HMA production levels, and tank heater and generator hours of operation. Select fuel types and generator options as noted below.

Short term source factor for carcinogens is set to "N", i.e., No. Do not change this to Y. Do not delete cells related to this as this will zero out carcinogenic emissions.

Using T-RACT for carcinogens is set to "N", i.e., No. Do not change this to Y. If appropriate, apply T-RACT factor of 10 to the carcinogenic ambient impact results from the modeling analysis.

Asphalt Drum Mixer/Dryer with Fabric Filter (Baghouse), either counterflow or parallel flow, fired by the following fuels:

For distallate fuel oil the default is 0.5% sulfur content by weight. User input is required in "Facility Data Input" for any other sulfur content.
For used Oil/RFO4 the default is 0.5% sulfur content by weight. User input required in "Facility Data Input" for any other sulfur content.
Natural gas
LPG/propane
Note: For Facility Data Input., input "1" (use this fuel) or "0" (don't use this fuel).
Note: The EI summary sheets will use the highest emission for any selected fuel for each pollutant.

Asphaltic Oil Tank Heater, either fired by #2 fuel oil or natural gas

Note: For Facility Data Input., input "1" (use this fuel) or "0" (don't use this fuel).
Note: If line power is **ALWAYS** used to power the Asphaltic oil tank heater, input "0" for each fuel.
For distallate fuel oil the default is 0.5% sulfur content by weight. User input is required in "Facility Data Input" for any other sulfur content.
Note: The EI summary sheets will use the highest emission for any selected fuel for each pollutant.

For IC Engines Powering Electrical Generators (with a maximum of one small, less than 600 bhp, and/or one large IC engine, greater than 600 bhp)

Facility Data Input: Input "1" (include IC engine) or "0" (omit IC engine). If the engine is a "non-road" IC engine (thus not stationary), "0" should be selected for fuel.
For distallate fuel oil the default is 0.5% sulfur content by weight. User input is required in "Facility Data Input" for any other sulfur content.
Engine Certification: Input whether or not the IC engine is certified, or is certfied to meet EPA Tier 1, Tier 2, Tier 3, Tier 4 or Blue Sky standards.
The EI will use the appropriate EFs for either a large or small diesel-fueled generator. EI summary sheets combine contributions from just one small (< 600 bhp) and/or one large (> 600 bhp) generator.

General Assumptions (see the next tab sheet for specific assumptions for each tab sheet):

This emissions evaluation is based on IDAPA regulatory requirements current as of spreadsheet version date.
EFs are drawn from AP-42 factors available as of spreadsheet version date.
Average brake-specific fuel consumption of 7,000 Btu/hp-hr was assumed to convert from lb/MMBtu to lb/hp-hr.
Average diesel heating value is based on 19,300 Btu/lb with a density of 7.1 lb/gal.
AP-42 EFs for natural gas combustion (Tables 1.4-xx) are based on heat value of 1,020 Btu/scf.
Natural Gas Fuel Heating Value assumed to be 137,030 Btu/gal.
"Reasonable" AP-42 factors are used. Where factors were available in more than one AP-42 section, the estimates are based on the highest of the available factors. For example, AP-42 11.1 EFs for a tank heater burning #2 oil include no information for emissions of PM, NOx, SOx, VOCs, or lead, which is not reasonable. Criteria pollutant EFs from AP-42 1.3, Fuel Oil Combustion, are used instead, and are considered reasonable.
Fugitive Emissions: Fugitive PM emissions from storage piles are typically caused by front-end loader operations that transport the aggregate to the cold feed unit hoppers. Piles of RAP, because RAP is coated with asphalt cement, are not likely to cause significant fugitive dust problems. Aggregate moisture content prior to entry into the dryer is typically 3 percent to 7 percent. This moisture content, along with aggregate size classification, tend to minimize emissions from these sources, which contribute little to total facility PM emissions. PM10 emissions from these sources are reported to account for about 19 percent of their total PM emissions. *Source: STAPPA-ALAPCO-EPA, Preferred and Alternative Methods for Estimating Air Emissions from Hot-Mix Asphalt Plants, Final Report, July 1996. DEQ* CONCLUSION: Negligible fine PM emissions from RAP. Worst-case fugitive emissions from material handling are for 0% RAP. Assume aggregate/RAP tons = 96% of total HMA tons.

Worksheet Tabs: Letter-Number reflect Location and Order in Statement of Basis

Facility Data Input (primary worksheet for user **input** of facility-specific parameters)
EmissionInventory lb/hr - Drum dryer baghouse, tank heater, generator, silo filling, and load-out
EmissionInventory TPY - Drum dryer baghouse, tank heater, generator, silo filling, and load-out
Values in Emission Inventories reflect the maximum emissions ONLY from fuel types selected.
FACWIDE TAPs ELs. Used for TAPs EL screening. Includes silo/loadout fugitives.
Lb/hr emissions shown are 24-hr averages for noncarcinogens and annual averages for carcinogens.
Modeling - Criteria Pollutants 1-, 3-, 8-, 24-hour, and annual lb/hr emission rates
Modeling - TAPs 24-hour and annual lb/hr emission rates

Worksheets for Emissions based on Source and Fuel Type:

Drum Dryer Used Oil FabricFilter	Drum Dryer, fired on used oil or RF04 oil
Drum Dryer #2 Oil FabricFilter	Drum Dryer, fired on #2 fuel oil
Drum Dryer NG Fabric Filter	Drum Dryer, natural gas fired
Drum Dryer LPG or Propane FabricFilter	Drum Dryer, LPG or propane-fired
Tank Heater #2 Oil AP-42 1.3, 11.1	Asphalt Tank Heater, fired on #2 fuel oil
Tank Heater NG-AP42 11.1	Asphalt Tank Heater, natural gas fired
Tank Heater NG-AP42 1.4	Asphalt Tank Heater, natural gas fired
Silo Fill Operations	Fugitive emissions based on HMA throughput
Load-out Operations	Fugitive emissions based on HMA throughput

Scalping Screen & Transfer Points (Front-end Loader and Conveyors) - **Input # transfer pts, wind speeds & moisture**
IC1 Emission Factors (Selects appropriate EFs for non-certified engines and EPA Tier 1, 2, 3, and Blue Sky engines)
IC ENGINE 1< 600 bhp (< 447kW) #2 Fuel oil fired
IC2 Emission Factors (Selects appropriate EFs for non-certified engines and EPA Tier 1, 2, 3, and Blue Sky engines)
IC ENGINE 2 > 600 bhp (> 447kW) #2 Fuel oil fired

DEQ ASSUMPTIONS

DEQ assumptions for the "Drum Dryer UsedOil FabricFilter" Calculations
1. Drum Dryer may be either counter-flow or parallel flow (AP-42 specifies no diference in emissions from either type).
2. SO2 emissions are based on the sulfur content and the Scavenging Factor (varies from 50 to 97%). DEQ used a scavenging factor of 63%. The sulfur content of the three waste oil source tests averaged 0.44 % by weight.

DEQ assumptions for the "Drum Dryer NG FabricFilter" Calculations

DEQ assumptions for the "Drum Dryer #2 Oil FabricFilter" Calculations
1. SO2 emissions are based on the sulfur content and the Scavenging Factor (varies from 50 to 97%). DEQ used a scavenging factor of 63%. The sulfur content of the three waste oil source tests averaged 0.44 % by weight.

DEQ assumptions for the "Drum Dryer LPGProp FabricFilter" Calculations

DEQ assumptions for the "TankHtr #2 Oil-AP42 1.3,11.1" Calculations
1. VOC and TAPs emissions from the asphaltic oil storage tank were determined using Tanks 4.0.9d and the Working and Breathing losses were negligible (less than 1% of total VOC emissions).

DEQ assumptions for the "Tank Heater NG-AP42 11.1" Calculations
1. VOC and TAPs emissions from the asphaltic oil storage tank were determined using Tanks 4.0.9d and the Working and Breathing losses were negligible (less than 1% of total VOC emissions).

DEQ assumptions for the "Tank Heater NG-AP42 1.4" Calculations
1. VOC and TAPs emissions from the asphaltic oil storage tank were determined using Tanks 4.0.9d and the Working and Breathing losses were negligible (less than 1% of total VOC emissions).

DEQ assumptions for the "SiloFill Criteria&TAPs" Calculations
1. All PM10 is assumed to be PM2.5.

CURRENT PTC APPLICATION VALUES

DEQ Verification Worksheets: Hot Mix Asphalt (HMA) Drum Mix Facility Data

Facility ID/AIRS No.	081-00009	Spreadsheet Date	7/21/2021 13:32
Permit No.	P-2021.0008	DEQ Version Date	8/2/2018
Facility Owner/Company Name:	Avail Valley Construction-ID, LLC - Driggs		
Address:	140 S 1750 E		
City, State, Zip:	Driggs, ID 83422		
Facility Contact:	Beth Martin		
Contact Number/ e-mail:	208-787-6936 / beth@availvalley.com		
		Include Silo Fill & Loadout Emissions?	Y
Use Short Term Source Factor on 586 ELs? Y/N	N	**Use T-RACT on 586 AACC? Y/N**	N
Hot Mix Plant AP-42 Section 11.1	**Input (Bold Color) or Calculated Value (Black)**	**Fuel Type(s)**	**Fuel Type Toggle ("0" or "1")**
Drum Dryer Make/Model	Cedar Rapids/SN882833586	Distallate (#2) Fuel Oil	0
Rated heat input capacity, MMBtu/hr	106	Used Oil or RFO4 Oil	0
Drum Dryer Hourly HMA Production, Tons/hour	250	Natural Gas	0
Max Production Per day, Tons per day	2,000	LPG or Propane	1
Max Annual HMA Production, Tons/year	45,000	Default #2 fuel oil and used oil sulfur content percentage by weight	0.0015% and 0.5%
Min Hours of operation per year (annual/max hourly production)	180	#2 Fuel Oil Max Sulfur Content	0.0015%
		Used Oil/RFO4 Oil Max Sulfur Content	0.5000%
Asphaltic Oil Tank Heater AP-42, Section 11.1 (oil or natural gas fuel), or Section 1.4 (natural gas fuel)			
Rated heat input capacity, MMBtu/hr	2.950	**Fuel Type(s)**	**Fuel Toggle**
Hours of operation per day	12	#2 Fuel Oil	1
Operation, days per year (DEQ Assumption)	333.33	Fuel oil sulfur content	0.050%
Max Hours of operation per year (DEQ Assumption)	4,000	Natural Gas	0

Asphaltic Oil Tank Heater Fuel Consumption Calculations	**#2 Fuel Oil**	**Natural Gas**
Heat Input Rating, MMBtu/hr	2.950	2.950
Fuel Heating Value, Btu/gal (oil) or Btu/scf (gas)	137,030	1,020
Heating Value Correction for Natural Gas EFs, see Note	n/a	1.000
Theoretical Max Fuel Use Rate gal/hr [oil] or scf/hr [gas]	21.53	2,892
Max Operational Hours per Year	4,000	4,000
Note: AP-42 EFs for natural gas and diesel combustion are based on heat value of 1,020 Btu/scf and 137,030 Btu/gal		

IC Engine EI Conversion Factors			
1 hp = 0.7456999 kW	0.7457	1 lb = (g)	453.59
Avg brake-specific fuel consumption (BSFC) = 7000 Btu/hp-hr	7000	Fuel Heating Value, Btu/gal	137,030
Note: AP-42 Tables 3.3-x,3.4-x: avg. diesel heating value is based on 19,300 Btu/lb with density equal 7.1 lb/gal=> Btu/gal =			137,030

NOTE: THE HMA EI SUMMARY WORKSHEETS ONLY ALLOWS ONE SMALL AND/OR ONE LARGE IC ENGINE.

IC Engine 1 < 600 bhp (447 kW) AP-42 Section 3.3 (diesel fueled)			
IC Engine Make/Model	Caterpillar/3056	**Fuel Type(s)**	**IC Engine Toggle**
IC Engine Year Manufactured (yyyy)	1995	#2 Fuel Oil (Diesel)	1
IC Engine Max Rated Power (bhp)	40	Max Sulfur weight percentage	0.0500%
IC Engine Max Rated Capacity (kW)	30	Max Operational Hours/Day	10
		Max Operational Hours/Year	2,000
IC Engine 1 EPA Certification:	0	Calculated Max Fuel Use Rate, gal/hr	2.04
Not EPA-certified: Enter "0" (zero)		Calculated MMBtu/hr	0.28
Certified Tier I, Tier 2, Tier 3, or Tier 4: Enter 1, 2, 3, or 4			
Certified "BLUE SKY" engine: Enter 5			

IC Engine 2 > 600 bhp (447 kW) AP-42 Section 3.4 (diesel fueled)			
IC Engine Make/Model	Caterpillar/3412	**Fuel Type(s)**	**IC Engine Toggle**
IC Engine Year Manufactured (yyyy)	2004	#2 Fuel Oil (Diesel)	1
IC Engine Rated Capacity (bhp)	896	Max Sulfur weight percentage	0.0500%
IC Engine Max Rated Capacity (kW)	668	Max Operational Hours per Day	10
		Max Operational Hours per Year	1,000
IC Engine 2 EPA Certification:	0	Calculated Max Fuel Use Rate, gal/hr	45.77
Not EPA-certified: Enter "0" (zero)		Calculated MMBtu/hr	6.27
Certified Tier I, Tier 2, Tier 3, or Tier 4: Enter 1, 2, 3, or 4			
Certified "BLUE SKY" engine: Enter 5			

Aggregate Handling - Fugitive Emissions		
U = mean wind speed (miles per hour)	10	
Moisture/Control % Considerations:		
AP-42 Table 11.19.2-2, Note b. Moisture content of uncontrolled sources ranged from 0.21 to 1.3%		
AP-42 Table 11.19.2-2, Note b. Moisture content of controlled (water spray) sources ranged from 0.55 to 2.88% -->		
		--> ~91.3% control for screening, ~95% control for conve
M = moisture content (%)	3	Bulk aggregate for HMAstypically stabilizes at 3 to 5% by weight.
If higher moisture is maintained, apply additional % control:	90.00%	For M=3% add 10% control. For M=5% add 15% control. 90% con
Number of front-end loader drop points (aggregate and RAP) (DEQ Assumption)	2	Drops to storage pile(s) and drop(s) to bins
Aggregate weigh conveyor transfer points (DEQ Assumption)	2	Transfer from bins to conveyor & from conveyor to scalping screen

Facility: **Avail Valley Construction-ID, LLC - Driggs**
7/21/2021 13:32 **Permit/Facility ID: P-2021.0008 081-00009**

Used Oil Fired Drum Mix Asphalt Plant With Fabric Filter AP-42 Section 11.1

Fuel Type Toggle = 0
Max Hourly Production 250 T/hr
Max Daily Production 2,000 Tons/day
Max Annual Production 45,000 Tons/yr

User Input Weight % Sulfur = 0.5000%
AP-42 EF of 0.058 lb SO2/ton presumed based on #2 oil, max 0.5% sulfur content
SO2 emissions are multiplied by a factor: User Input Value/0.5% = 1.00

Pollutant	Emission Factor[a] (lb/ton)	Emissions (lb/hr)	Emissions (T/yr)	TAPs Emissions (lb/hr) **Annual** or 24-hr Average
PM (total) [b]	0.033	0.00	0.00	
PM-10 (total) [b]	0.023	0.00	0.00	
PM-2.5 [b1]	0.0223	0.00	0.00	
CO [c]	0.13	0.00	0.00	
NOx [c]	0.055	0.00	0.00	
SO_2 [c]	0.089	0.00	0.00	
VOC [d]	0.032	0.00	0.00	
Lead	1.50E-05	0.00E+00	0.00E+00	
HCl [d,e]	0.00021	0	0.00E+00	
Dioxins[e,f]				
2,3,7,8-TCDD	2.10E-13	0.00E+00	0.00E+00	**0.00E+00**
Total TCDD	9.30E-13	0.00E+00	0.00E+00	**0.00E+00**
1,2,3,7,8-PeCDD	3.10E-13	0.00E+00	0.00E+00	**0.00E+00**
Total PeCDD	2.20E-11	0.00E+00	0.00E+00	**0.00E+00**
1,2,3,4,7,8-HxCDD	4.20E-13	0.00E+00	0.00E+00	**0.00E+00**
1,2,3,6,7,8-HxCDD	1.30E-12	0.00E+00	0.00E+00	**0.00E+00**
1,2,3,7,8,9-HxCDD	9.80E-13	0.00E+00	0.00E+00	**0.00E+00**
Total HxCDD	1.20E-11	0.00E+00	0.00E+00	**0.00E+00**
1,2,3,4,6,7,8-Hp-CDD	4.80E-12	0.00E+00	0.00E+00	**0.00E+00**
Total HpCDD	1.90E-11	0.00E+00	0.00E+00	**0.00E+00**
Octa CDD	2.50E-11	0.00E+00	0.00E+00	**0.00E+00**
Total PCDD[h]	7.90E-11	0.00E+00	0.00E+00	**0.00E+00**
Furans[e,f]				
2,3,7,8-TCDF	9.70E-13	0.00E+00	0.00E+00	**0.00E+00**
Total TCDF	3.70E-12	0.00E+00	0.00E+00	**0.00E+00**
1,2,3,7,8-PeCDF	4.30E-12	0.00E+00	0.00E+00	**0.00E+00**
2,3,4,7,8-PeCDF	8.40E-13	0.00E+00	0.00E+00	**0.00E+00**
Total PeCDF	8.40E-11	0.00E+00	0.00E+00	**0.00E+00**
1,2,3,4,7,8-HxCDF	4.00E-12	0.00E+00	0.00E+00	**0.00E+00**
1,2,3,6,7,8-HxCDF	1.20E-12	0.00E+00	0.00E+00	**0.00E+00**
2,3,4,6,7,8-HxCDF	1.90E-12	0.00E+00	0.00E+00	**0.00E+00**
1,2,3,7,8,9-HxCDF	8.40E-12	0.00E+00	0.00E+00	**0.00E+00**
Total HxCDF	1.30E-11	0.00E+00	0.00E+00	**0.00E+00**
1,2,3,4,6,7,8-HpCDF	6.50E-12	0.00E+00	0.00E+00	**0.00E+00**
1,2,3,4,7,8,9-HpCDF	2.70E-12	0.00E+00	0.00E+00	**0.00E+00**
Total HpCDF	1.00E-11	0.00E+00	0.00E+00	**0.00E+00**
Octa CDF	4.80E-12	0.00E+00	0.00E+00	**0.00E+00**
Total PCDF[h]	4.00E-11	0.00E+00	0.00E+00	**0.00E+00**
Total PCDD/PCDF[h]	1.20E-10	0.00E+00	0.00E+00	**0.00E+00**
Non-PAH HAPs[f]				
Acetaldehyde[e]	1.30E-03	0.00E+00	0.00E+00	**0.00E+00**
Acrolein[e]	2.60E-05	0.00E+00	0.00E+00	0.00E+00
Benzene[e]	3.90E-04	0.00E+00	0.00E+00	**0.00E+00**
1,3-Butadiene[e]				
Ethylbenzene[e]	2.40E-04	0.00E+00	0.00E+00	0.00E+00
Formaldehyde[e]	3.10E-03	0.00E+00	0.00E+00	**0.00E+00**
Hexane[e]	9.20E-04	0.00E+00	0.00E+00	0.00E+00
Isooctane	4.00E-05	0.00E+00	0.00E+00	0.00E+00
Methyl Ethyl Ketone[e]	2.00E-05	0.00E+00	0.00E+00	0.00E+00
Pentane[e]				
Propionaldehyde[e]	1.30E-04	0.00E+00	0.00E+00	0.00E+00
Quinone[e]	1.60E-04	0.00E+00	0.00E+00	0.00E+00
Methyl chloroform[e]	4.80E-05	0.00E+00	0.00E+00	0.00E+00
Toluene[e]	2.90E-03	0.00E+00	0.00E+00	0.00E+00
Xylene[e]	2.00E-04	0.00E+00	0.00E+00	0.00E+00
POM (7-PAH Group)		0.00E+00		**0.00E+00**

Pollutant	Emission Factor[a] (lb/ton)	Emissions (lb/hr)	Emissions (T/yr)	TAPs Emissions (lb/hr) **Annual** or 24-hr Average
PAH HAPs[f]				
2-Methylnaphthalene	1.70E-04	0.00E+00	0.00E+00	**0.00E+00**
3-Methylchloranthrene[e]				
Acenaphthene	1.40E-06	0.00E+00	0.00E+00	**0.00E+00**
Acenaphthylene	2.20E-05	0.00E+00	0.00E+00	**0.00E+00**
Anthracene	3.10E-06	0.00E+00	0.00E+00	**0.00E+00**
Benzo(a)anthracene	2.10E-07	0.00E+00	0.00E+00	**0.00E+00**
Benzo(a)pyrene[e]	9.80E-09	0.00E+00	0.00E+00	**0.00E+00**
Benzo(b)fluoranthene	1.00E-07	0.00E+00	0.00E+00	**0.00E+00**
Benzo(e)pyrene	1.10E-07	0.00E+00	0.00E+00	**0.00E+00**
Benzo(g,h,i)perylene	4.00E-08	0.00E+00	0.00E+00	**0.00E+00**
Benzo(k)fluoranthene	4.10E-08	0.00E+00	0.00E+00	**0.00E+00**
Chrysene	1.80E-07	0.00E+00	0.00E+00	**0.00E+00**
Dibenzo(a,h)anthracene				
Dichlorobenzene				
Fluoranthene	6.10E-07	0.00E+00	0.00E+00	**0.00E+00**
Fluorene	1.10E-05	0.00E+00	0.00E+00	**0.00E+00**
Indeno(1,2,3-cd)pyrene	7.00E-09	0.00E+00	0.00E+00	**0.00E+00**
Naphthalene[e]	6.50E-04	0.00E+00	0.00E+00	**0.00E+00**
Perylene	8.80E-09	0.00E+00	0.00E+00	**0.00E+00**
Phenanthrene	2.30E-05	0.00E+00	0.00E+00	**0.00E+00**
Pyrene	3.00E-06	0.00E+00	0.00E+00	**0.00E+00**
Non-HAP Organic Compounds[f]				
Acetone[e]	8.30E-04	0.00E+00	0.00E+00	0.00E+00
Benzaldehyde	1.10E-04	0.00E+00	0.00E+00	0.00E+00
Butane	6.70E-04	0.00E+00	0.00E+00	0.00E+00
Butyraldehyde	1.60E-04	0.00E+00	0.00E+00	0.00E+00
Crotonaldehyde[e]	8.60E-05	0.00E+00	0.00E+00	0.00E+00
Ethylene	7.00E-03	0.00E+00	0.00E+00	0.00E+00
Heptane	9.40E-03	0.00E+00	0.00E+00	0.00E+00
Hexanal	1.10E-04	0.00E+00	0.00E+00	0.00E+00
Isovaleraldehyde	3.20E-05	0.00E+00	0.00E+00	0.00E+00
2-Methyl-1-pentene	4.00E-03	0.00E+00	0.00E+00	0.00E+00
2-Methyl-2-butene	5.80E-04	0.00E+00	0.00E+00	0.00E+00
3-Methylpentane	1.90E-04	0.00E+00	0.00E+00	0.00E+00
1-Pentene	2.20E-03	0.00E+00	0.00E+00	0.00E+00
n-Pentane	2.10E-04	0.00E+00	0.00E+00	0.00E+00
Valeraldehyde[e]	6.70E-05	0.00E+00	0.00E+00	0.00E+00
Metals[g]				
Antimony[e]	1.80E-07	0.00E+00	0.00E+00	0.00E+00
Arsenic[e]	5.60E-07	0.00E+00	0.00E+00	**0.00E+00**
Barium[e]	5.80E-06	0.00E+00	0.00E+00	0.00E+00
Beryllium[e]				
Cadmium[e]	4.10E-07	0.00E+00	0.00E+00	**0.00E+00**
Chromium[e]	5.50E-06	0.00E+00	0.00E+00	0.00E+00
Cobalt[e]	2.60E-08	0.00E+00	0.00E+00	0.00E+00
Copper[e]	3.10E-06	0.00E+00	0.00E+00	0.00E+00
Hexavalent Chromium[e]	4.50E-07	0.00E+00	0.00E+00	**0.00E+00**
Manganese[e]	7.70E-06	0.00E+00	0.00E+00	0.00E+00
Mercury[e]	2.60E-06	0.00E+00	0.00E+00	0.00E+00
Molybdenum[e]				
Nickel[e]	6.30E-05	0.00E+00	0.00E+00	**0.00E+00**
Phosphorus[e]	2.80E-05	0.00E+00	0.00E+00	0.00E+00
Silver[e]	4.80E-07	0.00E+00	0.00E+00	0.00E+00
Selenium[e]	3.50E-07	0.00E+00	0.00E+00	0.00E+00
Thallium[e]	4.10E-09	0.00E+00	0.00E+00	0.00E+00
Vanadium[e]				
Zinc[e]	6.10E-05	0.00E+00	0.00E+00	0.00E+00

a) Emission factors are from AP-42 11.1, Hot Mix Asphalt Plants, 3/04
b) AP-42, Table 11.1-3, Particulate Matter Emission Factors for Drum Mix Hot Asphalt Plants, 3/04
b1) AP-42, Table 11.1-4, Summary of Particle Size Distribution for Drum Mix Dryers **(Emission Rating Factor E - "Poor")**
c) AP-42, Table 11.1-7, Emission Factors for CO. CO2, NOx, and SO2 from Drum Mix Hot Asphalt Plants, 3/04

In addition, for SO2 emissions the AP-42 EF of 0.058 lb/ton was adjusted twice. First, to account for the average sulfur content of the fuel used during the source test (0.44% by weight, three tests on waste oil), 0.058 to 0.066. Second, to account for the average scavenging factor of 63% down to 50%, 0.062 to 0.089.

d) AP-42, Table 11.1-8, Emission Factors for TOC, Methane, VOC, and HCl from Drum Mix Hot Asphalt Plants, 3/04
e) IDAPA Toxic Air Pollutant
f) AP-42, Table 11.1-10, Emission Factors for Organic Pollutant Emissions from Drum Mix Hot Asphalt Plants, 3/04
g) AP-42, Table 11.1-12, Emission Factors for Metal Emissions from Drum Mix Hot Mix Asphalt Plants, 3/04
h) Compound is classified as polycyclic organic matter, as defined in the 1990 CAAA. Total PCDD is the sum of the total tetra through octa dioxins; total PCDF is sum of the total tetra through octa furans; and total PCDD/PCDF is the sum of total PCDD and total PCDF.

Pollutants shown in bold/blue text are emitted when using Used Oil but not when using #2 Fuel Oil or Natural Gas.
Pollutants shown in magenta are emitted when using Used Oil or #2 Fuel Oil, but not when using Natural Gas

TAPs lb/hr rates are 24-hr averages except for those in bold text. Lb/hr rates for bold TAPs (carcinogens) are annual averages.
Pollutants shown in blue text are emitted only when burning Used Oil, but not when burning #2 Fuel Oil or Natural Gas

Facility: **Avail Valley Construction-ID, LLC - Driggs**
7/21/2021 13:32 **Permit/ Facility ID: P-2021.0008 081-00009**

Natural Gas Fired Drum Mix Asphalt Plant With Fabric Filter AP-42 Section 11.1

Fuel Type Toggle = 0
Max Hourly Production 250 Tons/hr
Max Daily Production 2,000 Tons/day
Max Annual Production 45,000 Tons/yr (Proposed Throughput Limit)

Pollutant	Emission Factor[a] (lb/ton)	Emissions (lb/hr)	Emissions (T/yr)	TAPs Emissions (lb/hr) **Annual** or 24-hr Average
PM (total)[b]	0.033	0.00	0.00	
PM-10 (total)[b]	0.023	0.00	0.00	
PM-2.5 [b1]	0.0223	0.00	0.00	
CO [c]	0.13	0.00	0.00	
NOx [c]	0.026	0.00	0.00	
SO_2 [c]	0.0034	0.00	0.00	
VOC [d]	0.032	0.00	0.00	
Lead	6.20E-07	0.00E+00	0.00E+00	
HCl [d,e]	No Data			
Dioxins[e]				
-- No EFs for Natural Gas Fuel --				
Furans[e]				
-- No EFs for Natural Gas Fuel --				
Non-PAH HAPs[f]				
Acetaldehyde[e]				
Acrolein[e]				
Benzene[e]	3.90E-04	0.00E+00	0.00E+00	**0.00E+00**
1,3-Butadiene[e]				
Ethylbenzene[e]	2.40E-04	0.00E+00	0.00E+00	0.00E+00
Formaldehyde[e]	3.10E-03	0.00E+00	0.00E+00	**0.00E+00**
Hexane[e]	9.20E-04	0.00E+00	0.00E+00	0.00E+00
Isooctane	4.00E-05	0.00E+00	0.00E+00	0.00E+00
Methyl Ethyl Ketone[e]				
Pentane[e]				
Propionaldehyde[e]				
Quinone[e]				
Methyl chloroform[e]	4.80E-05	0.00E+00	0.00E+00	0.00E+00
Toluene[e]	1.50E-04	0.00E+00	0.00E+00	0.00E+00
Xylene[e]	2.00E-04	0.00E+00	0.00E+00	0.00E+00
POM (7-PAH Group)		0.00E+00		**0.00E+00**

Pollutant	Emission Factor[a] (lb/ton)	Emissions (lb/hr)	Emissions (T/yr)	TAPS Emissions (lb/hr) **Annual** or 24-hr Average
PAH HAPs[f]				
2-Methylnaphthalene	7.40E-05	0.00E+00	0.00E+00	**0.00E+00**
3-Methylchloranthrene[e]				
Acenaphthene	1.40E-06	0.00E+00	0.00E+00	**0.00E+00**
Acenaphthylene	8.60E-06	0.00E+00	0.00E+00	**0.00E+00**
Anthracene	2.20E-07	0.00E+00	0.00E+00	**0.00E+00**
Benzo(a)anthracene	2.10E-07	0.00E+00	0.00E+00	**0.00E+00**
Benzo(a)pyrene[e]	9.80E-09	0.00E+00	0.00E+00	**0.00E+00**
Benzo(b)fluoranthene	1.00E-07	0.00E+00	0.00E+00	**0.00E+00**
Benzo(e)pyrene	1.10E-07	0.00E+00	0.00E+00	**0.00E+00**
Benzo(g,h,I)perylene	4.00E-08	0.00E+00	0.00E+00	**0.00E+00**
Benzo(k)fluoranthene	4.10E-08	0.00E+00	0.00E+00	**0.00E+00**
Chrysene	1.80E-07	0.00E+00	0.00E+00	**0.00E+00**
Dibenzo(a,h)anthracene				
Dichlorobenzene				
Fluoranthene	6.10E-07	0.00E+00	0.00E+00	**0.00E+00**
Fluorene	3.80E-06	0.00E+00	0.00E+00	**0.00E+00**
Indeno(1,2,3-cd)pyrene	7.00E-09	0.00E+00	0.00E+00	**0.00E+00**
Naphthalene[e]	9.00E-05	0.00E+00	0.00E+00	**0.00E+00**
Perylene	8.80E-09	0.00E+00	0.00E+00	**0.00E+00**
Phenanthrene	7.60E-06	0.00E+00	0.00E+00	**0.00E+00**
Pyrene	5.40E-07	0.00E+00	0.00E+00	**0.00E+00**
Non-HAPs Organic Compounds[f]				
Acetone[e]				
Benzaldehyde				
Butane	6.70E-04	0.00E+00	0.00E+00	0.00E+00
Butyraldehyde				
Crotonaldehyde[e]				
Ethylene	7.00E-03	0.00E+00	0.00E+00	0.00E+00
Heptane	9.40E-03	0.00E+00	0.00E+00	0.00E+00
Hexanal				
Isovaleraldehyde				
2-Methyl-1-pentene	4.00E-03	0.00E+00	0.00E+00	0.00E+00
2-Methyl-2-butene	5.80E-04	0.00E+00	0.00E+00	0.00E+00
3-Methylpentane	1.90E-04	0.00E+00	0.00E+00	0.00E+00
1-Pentene	2.20E-03	0.00E+00	0.00E+00	0.00E+00
n-Pentane	2.10E-04	0.00E+00	0.00E+00	0.00E+00
Valeraldehyde				
Metals[g]				
Antimony[e]	1.80E-07	0.00E+00	0.00E+00	0.00E+00
Arsenic[e]	5.60E-07	0.00E+00	0.00E+00	**0.00E+00**
Barium[e]	5.80E-06	0.00E+00	0.00E+00	0.00E+00
Beryllium[e]				
Cadmium[e]	4.10E-07	0.00E+00	0.00E+00	**0.00E+00**
Chromium[e]	5.50E-06	0.00E+00	0.00E+00	0.00E+00
Cobalt[e]	2.60E-08	0.00E+00	0.00E+00	0.00E+00
Copper[e]	3.10E-06	0.00E+00	0.00E+00	0.00E+00
Hexavalent Chromium[e]	4.50E-07	0.00E+00	0.00E+00	**0.00E+00**
Manganese[e]	7.70E-06	0.00E+00	0.00E+00	0.00E+00
Mercury[e]	2.40E-07	0.00E+00	0.00E+00	0.00E+00
Molybdenum[e]				
Nickel[e]	6.30E-05	0.00E+00	0.00E+00	**0.00E+00**
Phosphorus[e]	2.80E-05	0.00E+00	0.00E+00	0.00E+00
Silver[e]	4.80E-07	0.00E+00	0.00E+00	0.00E+00
Selenium[e]	3.50E-07	0.00E+00	0.00E+00	0.00E+00
Thallium[e]	4.10E-09	0.00E+00	0.00E+00	0.00E+00
Vanadium[e]				
Zinc[e]	6.10E-05	0.00E+00	0.00E+00	0.00E+00

a) Emission factors are from AP-42 11.1, Hot Mix Asphalt Plants, 3/04
b) AP-42, Table 11.1-3, Particulate Matter Emission Factors for Drum Mix Hot Asphalt Plants, 3/04
b1) AP-42, Table 11.1-4, Summary of Particle Size Distribution for Drum Mix Dryers **(Emission Rating Factor E - "Poor")**
c) AP-42, Table 11.1-7, Emission Factors for CO. CO2, NOx, and SO2 from Drum Mix Hot Asphalt Plants, 3/04
d) AP-42, Table 11.1-8, Emission Factors for TOC, Methane, VOC, and HCl from Drum Mix Hot Asphalt Plants, 3/04
e) IDAPA Toxic Air Pollutant
f) AP-42, Table 11.1-10, Emission Factors for Organic Pollutant Emissions from Drum Mix Hot Asphalt Plants, 3/04
g) AP-42, Table 11.1-12, Emission Factors for Metal Emissions from Drum Mix Hot Mix Asphalt Plants, 3/04

TAPs lb/hr rates are 24-hr averages except for those in bold text. Lb/hr rates for bold TAPs (carcinogens) are annual averages.

Facility: **Avail Valley Construction-ID, LLC - Driggs**
7/21/2021 13:32 **Permit/Facility ID: P-2021.0008 081-00009**

#2 Fuel Oil Fired Drum Mix Asphalt Plant With Fabric Filter AP-42 Section 11.1

Fuel Type Toggle = 0
Hourly Production 250 T/hr
Daily Production 2,000 Tons/day
Max Annual Production 45,000 Tons/yr

User Input Weight % Sulfur = 0.0015%
AP-42 EF of 0.058 lb SO2/ton presumed based on #2 oil, max 0.5% sulfur content
SO2 emissions are multiplied by a factor: User Input Value/0.5% = 0.003

Pollutant	Emission Factor[a] (lb/ton)	Emissions (lb/hr) Maximum	Emissions (T/yr)	TAPs Emissions (lb/hr) Annual or 24-hr Average
PM (total) [b]	0.033	0.00	0.00	
PM-10 (total) [b]	0.023	0.00	0.00	
PM-2.5 [b1]	0.0223	0.00	0.00	
CO [c]	0.13	0.00	0.00	
NOx [c]	0.055	0.00	0.00	
SO_2 [c]	0.089	0.00	0.00	
VOC [d]	0.032	0.00	0.00	
Lead	1.50E-05	0.00E+00	0.00E+00	
HCl [d,e]	No Data			
Dioxins[e]				
2,3,7,8-TCDD	2.10E-13	0	0.00E+00	**0.00E+00**
Total TCDD	9.30E-13	0	0.00E+00	**0.00E+00**
1,2,3,7,8-PeCDD	3.10E-13	0	0.00E+00	**0.00E+00**
Total PeCDD	2.20E-11	0	0.00E+00	**0.00E+00**
1,2,3,4,7,8-HxCDD	4.20E-13	0	0.00E+00	**0.00E+00**
1,2,3,6,7,8-HxCDD	1.30E-12	0	0.00E+00	**0.00E+00**
1,2,3,7,8,9-HxCDD	9.80E-13	0	0.00E+00	**0.00E+00**
Total HxCDD	1.20E-11	0	0.00E+00	**0.00E+00**
1,2,3,4,6,7,8-Hp-CDD	4.80E-12	0	0.00E+00	**0.00E+00**
Total HpCDD	1.90E-11	0	0.00E+00	**0.00E+00**
Octa CDD	2.50E-11	0	0.00E+00	**0.00E+00**
Total PCDD[h]	7.90E-11	0	0.00E+00	**0.00E+00**
Furans[e]				
2,3,7,8-TCDF	9.70E-13	0	0.00E+00	**0.00E+00**
Total TCDF	3.70E-12	0	0.00E+00	**0.00E+00**
1,2,3,7,8-PeCDF	4.30E-12	0	0.00E+00	**0.00E+00**
2,3,4,7,8-PeCDF	8.40E-13	0	0.00E+00	**0.00E+00**
Total PeCDF	8.40E-11	0	0.00E+00	**0.00E+00**
1,2,3,4,7,8-HxCDF	4.00E-12	0	0.00E+00	**0.00E+00**
1,2,3,6,7,8-HxCDF	1.20E-12	0	0.00E+00	**0.00E+00**
2,3,4,6,7,8-HxCDF	1.90E-12	0	0.00E+00	**0.00E+00**
1,2,3,7,8,9-HxCDF	8.40E-12	0	0.00E+00	**0.00E+00**
Total HxCDF	1.30E-11	0	0.00E+00	**0.00E+00**
1,2,3,4,6,7,8-HpCDF	6.50E-12	0	0.00E+00	**0.00E+00**
1,2,3,4,7,8,9-HpCDF	2.70E-12	0	0.00E+00	**0.00E+00**
Total HpCDF	1.00E-11	0	0.00E+00	**0.00E+00**
Octa CDF	4.80E-12	0	0.00E+00	**0.00E+00**
Total PCDF[h]	4.00E-11	0	0.00E+00	**0.00E+00**
Total PCDD/PCDF[h]	1.20E-10	0	0.00E+00	**0.00E+00**
Non-PAH HAPs[f]				
Acetaldehyde[e]				
Acrolein[e]				
Benzene[e]	3.90E-04	0.00E+00	0.00E+00	**0.00E+00**
1,3-Butadiene[e]				
Ethylbenzene[e]	2.40E-04	0.00E+00	0.00E+00	0.00E+00
Formaldehyde[e]	3.10E-03	0.00E+00	0.00E+00	**0.00E+00**
Hexane[e]	9.20E-04	0.00E+00	0.00E+00	0.00E+00
Isooctane	4.00E-05	0.00E+00	0.00E+00	0.00E+00
Methyl Ethyl Ketone[e]				
Pentane[e]				
Propionaldehyde[e]				
Quinone[e]				
Methyl chloroform[e]	4.80E-05	0.00E+00	0.00E+00	0.00E+00
Toluene[e]	2.90E-03	0.00E+00	0.00E+00	0.00E+00
Xylene[e]	2.00E-04	0.00E+00	0.00E+00	0.00E+00
POM (7-PAH Group)		0.00E+00		**0.00E+00**

Pollutant	Emission Factor[a] (lb/ton)	Emissions (lb/hr) Maximum	Emissions (T/yr)	TAPs Emissions (lb/hr) Annual or 24-hr Average
PAH HAPs[f]				
2-Methylnaphthalene	0.00017	0.00E+00	0.00E+00	**0.00E+00**
3-Methylchloranthrene[e]				
Acenaphthene	1.40E-06	0.00E+00	0.00E+00	**0.00E+00**
Acenaphthylene	2.20E-05	0.00E+00	0.00E+00	**0.00E+00**
Anthracene	3.10E-06	0.00E+00	0.00E+00	**0.00E+00**
Benzo(a)anthracene	2.10E-07	0.00E+00	0.00E+00	**0.00E+00**
Benzo(a)pyrene[e]	9.80E-09	0.00E+00	0.00E+00	**0.00E+00**
Benzo(b)fluoranthene	1.00E-07	0.00E+00	0.00E+00	**0.00E+00**
Benzo(e)pyrene	1.10E-07	0.00E+00	0.00E+00	**0.00E+00**
Benzo(g,h,I)perylene	4.00E-08	0.00E+00	0.00E+00	**0.00E+00**
Benzo(k)fluoranthene	4.10E-08	0.00E+00	0.00E+00	**0.00E+00**
Chrysene	1.80E-07	0.00E+00	0.00E+00	**0.00E+00**
Dibenzo(a,h)anthracene				
Dichlorobenzene				
Fluoranthene	6.10E-07	0.00E+00	0.00E+00	**0.00E+00**
Fluorene	1.10E-05	0.00E+00	0.00E+00	**0.00E+00**
Indeno(1,2,3-cd)pyrene	7.00E-09	0.00E+00	0.00E+00	**0.00E+00**
Naphthalene[e]	0.00065	0.00E+00	0.00E+00	**0.00E+00**
Perylene	8.80E-09	0.00E+00	0.00E+00	**0.00E+00**
Phenanthrene	2.30E-05	0.00E+00	0.00E+00	**0.00E+00**
Pyrene	3.00E-06	0.00E+00	0.00E+00	**0.00E+00**
Non-HAP Organic Compounds[f]				
Acetone[e]				
Benzaldehyde				
Butane	6.70E-04	0.00E+00	0.00E+00	0.00E+00
Butyraldehyde				
Crotonaldehyde[e]				
Ethylene	7.00E-03	0.00E+00	0.00E+00	0.00E+00
Heptane	9.40E-03	0.00E+00	0.00E+00	0.00E+00
Hexanal				
Isovaleraldehyde				
2-Methyl-1-pentene	4.00E-03	0.00E+00	0.00E+00	0.00E+00
2-Methyl-2-butene	5.80E-04	0.00E+00	0.00E+00	0.00E+00
3-Methylpentane	1.90E-04	0.00E+00	0.00E+00	0.00E+00
1-Pentene	2.20E-03	0.00E+00	0.00E+00	0.00E+00
n-Pentane	2.10E-04	0.00E+00	0.00E+00	0.00E+00
Valeraldehyde				
Metals[g]				
Antimony[e]	1.80E-07	0.00E+00	0.00E+00	0.00E+00
Arsenic[e]	5.60E-07	0.00E+00	0.00E+00	**0.00E+00**
Barium[e]	5.80E-06	0.00E+00	0.00E+00	0.00E+00
Beryllium[e]				
Cadmium[e]	4.10E-07	0.00E+00	0.00E+00	**0.00E+00**
Chromium[e]	5.50E-06	0.00E+00	0.00E+00	0.00E+00
Cobalt[e]	2.60E-08	0.00E+00	0.00E+00	0.00E+00
Copper[e]	3.10E-06	0.00E+00	0.00E+00	0.00E+00
Hexavalent Chromium[e]	4.50E-07	0.00E+00	0.00E+00	**0.00E+00**
Manganese[e]	7.70E-06	0.00E+00	0.00E+00	0.00E+00
Mercury[e]	2.60E-06	0.00E+00	0.00E+00	0.00E+00
Molybdenum[e]				
Nickel[e]	6.30E-05	0.00E+00	0.00E+00	**0.00E+00**
Phosphorus[e]	2.80E-05	0.00E+00	0.00E+00	0.00E+00
Silver[e]	4.80E-07	0.00E+00	0.00E+00	0.00E+00
Selenium[e]	3.50E-07	0.00E+00	0.00E+00	0.00E+00
Thallium[e]	4.10E-09	0.00E+00	0.00E+00	0.00E+00
Vanadium[e]				
Zinc[e]	6.10E-05	0.00E+00	0.00E+00	0.00E+00

a) Emission factors are from AP-42 11.1, Hot Mix Asphalt Plants, 3/04
b) AP-42, Table 11.1-3, Particulate Matter Emission Factors for Drum Mix Hot Asphalt Plants, 3/04
b1) AP-42, Table 11.1-4, Summary of Particle Size Distribution for Drum Mix Dryers **(Emission Rating Factor E - "Poor")**
c) AP-42, Table 11.1-7, Emission Factors for CO. CO2, NOx, and SO2 from Drum Mix Hot Asphalt Plants, 3/04
In addition, for SO2 emissions the AP-42 EF of 0.058 lb/ton was adjusted twice. First, to account for the average sulfur content of the fuel used during the source test (0.44% by weight, three tests on waste oil), 0.058 to 0.066. Second, to account for the average scavenging factor of 63% down to 50%, 0.062 to 0.089.
d) AP-42, Table 11.1-8, Emission Factors for TOC, Methane, VOC, and HCl from Drum Mix Hot Asphalt Plants, 3/04
e) IDAPA Toxic Air Pollutant
f) AP-42, Table 11.1-10, Emission Factors for Organic Pollutant Emissions from Drum Mix Hot Asphalt Plants, 3/04
g) AP-42, Table 11.1-12, Emission Factors for Metal Emissions from Drum Mix Hot Mix Asphalt Plants, 3/04
h) Compound is classified as polycyclic organic matter, as defined in the 1990 CAAA. Total PCDD is the sum of the total tetra through octa dioxins; total PCDF is sum of the total tetra through octa furans; and total PCDD/PCDF is the sum of total PCDD and total PCDF.

TAPs lb/hr rates are 24-hr averages except for those in bold text. Lb/hr rates for bold TAPs (carcinogens) are annual averages.

Facility: **Avail Valley Construction-ID, LLC - Driggs**
7/21/2021 13:32 **Permit/ Facility ID: P-2021.0008 081-00009** FF/S = Conversion factor, Baghouse EF to Scrubber EF: (1-0.70)/(1-0.99) = 30

LPG or Propane Fired Drum Mix Asphalt Plant With Scrubber

Fuel Type Toggle = 1
Max Hourly Production 250 Tons/hr
Max Daily Production 2,000 Tons/day
Max Annual Production 45,000 Tons/yr

Note: Presumes same emissions as natural gas except for NOx
(see AP-42, Section 1.5, Liquefied Petroleum Gas Combustion)
SO2 emissions from natural gas are ~70% lower than with #2 Fuel Oil, and ~94% lower than with Used Oil or #6 Fuel Oil (minimal impact on emissions, used Nat Gas EF)

Pollutant	Emission Factor[a] (lb/ton)	Emissions (lb/hr)	Emissions (T/yr)	TAPs Emissions (lb/hr) **Annual** or 24-hr Average
PM (total)[b]	0.045	11.25	1.01	
PM-10 (total)[b1]	0.0272	6.80	0.61	
PM-2.5 [b1]	0.02486	6.22	0.56	
CO [c]	0.13	32.50	2.93	
NOx [c1] (Natural Gas EF x 1.5)	0.039	9.75	0.88	
SO_2 [c]	0.0034	0.85	0.08	
VOC [d]	0.032	8.00	0.72	
Lead	6.20E-07	0.000155	1.40E-05	
HCl [d,e]	No Data			
Dioxins[e]				
-- No EFs for LP Gas or Propane Fuel --				
Furans[e]				
-- No EFs for LP Gas or Propane Fuel --				
Non-PAH HAPs[f]				
Acetaldehyde[e]				
Acrolein[e]				
Benzene[e]	3.90E-04	9.75E-02	8.78E-03	**2.00E-03**
1,3-Butadiene[e]				
Ethylbenzene[e]	2.40E-04	6.00E-02	5.40E-03	2.00E-02
Formaldehyde[e]	3.10E-03	7.75E-01	6.98E-02	**1.59E-02**
Hexane[e]	9.20E-04	2.30E-01	2.07E-02	7.67E-02
Isooctane	4.00E-05	1.00E-02	9.00E-04	3.33E-03
Methyl Ethyl Ketone[e]				
Pentane[e]				
Propionaldehyde[e]				
Quinone[e]				
Methyl chloroform[e]	4.80E-05	1.20E-02	1.08E-03	4.00E-03
Toluene[e]	1.50E-04	3.75E-02	3.38E-03	1.25E-02
Xylene[e]	2.00E-04	5.00E-02	4.50E-03	1.67E-02
POM (7-PAH Group)		1.37E-04		**2.81E-06**

Pollutant	Emission Factor[a] (lb/ton)	Emissions (lb/hr)	Emissions (T/yr)	TAPs Emissions (lb/hr) **Annual** or 24-hr Average
PAH HAPs[f]				
2-Methylnaphthalene	7.40E-05	1.85E-02	1.67E-03	**3.80E-04**
3-Methylchloranthrene[e]				
Acenaphthene	1.40E-06	3.50E-04	3.15E-05	**7.19E-06**
Acenaphthylene	8.60E-06	2.15E-03	1.94E-04	**4.42E-05**
Anthracene	2.20E-07	5.50E-05	4.95E-06	**1.13E-06**
Benzo(a)anthracene	2.10E-07	5.25E-05	4.73E-06	**1.08E-06**
Benzo(a)pyrene[e]	9.80E-09	2.45E-06	2.21E-07	**5.03E-08**
Benzo(b)fluoranthene	1.00E-07	2.50E-05	2.25E-06	**5.14E-07**
Benzo(e)pyrene	1.10E-07	2.75E-05	2.48E-06	**5.65E-07**
Benzo(g,h,I)perylene	4.00E-08	1.00E-05	9.00E-07	**2.05E-07**
Benzo(k)fluoranthene	4.10E-08	1.03E-05	9.23E-07	**2.11E-07**
Chrysene	1.80E-07	4.50E-05	4.05E-06	**9.25E-07**
Dibenzo(a,h)anthracene				
Dichlorobenzene				
Fluoranthene	6.10E-07	1.53E-04	1.37E-05	**3.13E-06**
Fluorene	3.80E-06	9.50E-04	8.55E-05	**1.95E-05**
Indeno(1,2,3-cd)pyrene	7.00E-09	1.75E-06	1.58E-07	**3.60E-08**
Naphthalene[e]	9.00E-05	2.25E-02	2.03E-03	**4.62E-04**
Perylene	8.80E-09	2.20E-06	1.98E-07	**4.52E-08**
Phenanthrene	7.60E-06	1.90E-03	1.71E-04	**3.90E-05**
Pyrene	5.40E-07	1.35E-04	1.22E-05	**2.77E-06**
Non-HAPs Organic Compounds[f]				
Acetone[e]				
Benzaldehyde				
Butane	6.70E-04	1.68E-01	1.51E-02	5.58E-02
Butyraldehyde				
Crotonaldehyde[e]				
Ethylene	7.00E-03	1.75E+00	1.58E-01	5.83E-01
Heptane	9.40E-03	2.35E+00	2.12E-01	7.83E-01
Hexanal				
Isovaleraldehyde				
2-Methyl-1-pentene	4.00E-03	1.00E+00	9.00E-02	3.33E-01
2-Methyl-2-butene	5.80E-04	1.45E-01	1.31E-02	4.83E-02
3-Methylpentane	1.90E-04	4.75E-02	4.28E-03	1.58E-02
1-Pentene	2.20E-03	5.50E-01	4.95E-02	1.83E-01
n-Pentane	2.10E-04	5.25E-02	4.73E-03	1.75E-02
Valeraldehyde				
Metals[g] FF/S				
Antimony[e]	5.40E-06	1.35E-03	1.22E-04	4.50E-04
Arsenic[e]	1.68E-05	4.20E-03	3.78E-04	**8.63E-05**
Barium[e]	1.74E-04	4.35E-02	3.92E-03	1.45E-02
Beryllium[e]				
Cadmium[e]	1.23E-05	3.08E-03	2.77E-04	**6.32E-05**
Chromium[e]	1.65E-04	4.13E-02	3.71E-03	1.38E-02
Cobalt[e]	7.80E-07	1.95E-04	1.76E-05	6.50E-05
Copper[e]	9.30E-05	2.33E-02	2.09E-03	7.75E-03
Hexavalent Chromium[e]	1.35E-05	3.38E-03	3.04E-04	**6.93E-05**
Manganese[e]	2.31E-04	5.78E-02	5.20E-03	1.93E-02
Mercury[e]	7.20E-06	1.80E-03	1.62E-04	6.00E-04
Molybdenum[e]				
Nickel[e]	1.89E-03	4.73E-01	4.25E-02	**9.71E-03**
Phosphorus[e]	8.40E-04	2.10E-01	1.89E-02	7.00E-02
Silver[e]	1.44E-05	3.60E-03	3.24E-04	1.20E-03
Selenium[e]	1.05E-05	2.63E-03	2.36E-04	8.75E-04
Thallium[e]	1.23E-07	3.08E-05	2.77E-06	1.03E-05
Vanadium[e]				
Zinc[e]	1.83E-03	4.58E-01	4.12E-02	1.53E-01

a) Emission factors are from AP-42 11.1, Hot Mix Asphalt Plants, 3/04
b) AP-42, Table 11.1-3, Particulate Matter Emission Factors for Drum Mix Hot Asphalt Plants, 3/04
b1) AP-42, Table 11.1-4, Summary of Particle Size Distribution for Drum Mix Dryers **(Emission Rating Factor E - "Poor"),** By using the particle distribution for baghouses in Table 11.1-4 below for the scubber operation, conservative PM10 and PM2.5 emission factors were formulated because the actual size distribution for the venturi will be more in the larger size than a baghouse. The filterable PM emission factor for scrubbers was multipled by the corresponding PM size (2.5 or 10) distribution in baghouses listed in AP-42 and then added to the condensable PM to give the scrubber emission factors for PM10 and PM2.5.
c) AP-42, Table 11.1-7, Emission Factors for CO. CO2, NOx, and SO2 from Drum Mix Hot Asphalt Plants, 3/04
c1) AP-42, Table 1.5-1, Emission Factors for LPG Combustion, note (a): "Assumes emissions (except SOx and NOx) are the same, on a heat input basis, as for natural gas combustion. The NOx emission factors have been multiplied by a factor of 1.5, which is the approximate ration of propane/butane NOx emissions to natural gas NOx emissions.
d) AP-42, Table 11.1-8, Emission Factors for TOC, Methane, VOC, and HCl from Drum Mix Hot Asphalt Plants, 3/04
e) IDAPA Toxic Air Pollutant
f) AP-42, Table 11.1-10, Emission Factors for Organic Pollutant Emissions from Drum Mix Hot Asphalt Plants, 3/04
g) AP-42, Table 11.1-12, Emission Factors for Metal Emissions from Drum Mix Hot Mix Asphalt Plants, 3/04, EF for these pollutants were not provided in AP-42 for scrubbers; therefore their emissions were calculated as described in the box below:

TAPs lb/hr rates are 24-hr averages except for those in bold text. Lb/hr rates for bold TAPs (carcinogens) are annual averages.

7/21/2021 13:32 **Permit/Facility ID: P-2021.0008 081-00009**

Asphalt Tank Heater - #2 Oil Fired, Estimated Emissions Using AP-42 Sections 11.1 (HMA Plants) & 1.3 (Fuel Oil Combustion)

Fuel Type Toggle = 1
Fuel Consumption Rate 21.53 gal/hr
Max Daily Operation 12 hr/day
Max Annual Operation 4,000 hrs/yr

User Input Weight % Sulfur = 0.0500%
AP-42 1.3-1 EF is 0.142S lb SO2 per gallon of fuel oil

Pollutant	Emission Factor[a] (lb/gal)	Emissions (lb/hr)	Emissions (T/yr)	TAPs Emissions (lb/hr) **Annual** or 24-hr Average
PM (total)[b] (filterable+cond)	0.0033	7.10E-02	0.14	
PM-10 (total)[b] (filterable+cond)	0.0023	4.95E-02	0.10	
PM-2.5 (total)[b] (filterable+cond)	0.00154	0.033	0.07	
CO[b] ("C" EF Rating Factor)	0.005	1.08E-01	0.22	
NOx[b]	0.024	5.17E-01	1.03	
SO_2[b]	0.0071	0.15	0.31	
VOC[d] (NMTOC EF)	5.56E-04	1.20E-02	2.39E-02	
Lead[f]	1.51E-06	3.25E-05	6.50E-05	
HCl[e]				
Dioxins[e]				
2,3,7,8-TCDD				
Total TCDD				
1,2,3,7,8-PeCDD				
Total PeCDD				
1,2,3,4,7,8-HxCDD[c]	6.90E-13	1.49E-11	2.97E-11	**6.78E-12**
1,2,3,6,7,8-HxCDD				
1,2,3,7,8,9-HxCDD[c]	7.60E-13	1.64E-11	3.27E-11	**7.47E-12**
Total HxCDD				
1,2,3,4,6,7,8-Hp-CDD[c]	1.50E-11	3.23E-10	6.46E-10	**1.47E-10**
Total $HpCDD_c$	2.00E-11	4.31E-10	8.61E-10	**1.97E-10**
Octa CDD[c]	1.60E-10	3.44E-09	6.89E-09	**1.57E-09**
Total PCDD[c]	2.00E-10	4.31E-09	8.61E-09	**1.97E-09**
Furans[e]				
2,3,7,8-TCDF				
Total TCDF[c]	3.30E-12	7.10E-11	1.42E-10	**3.24E-11**
1,2,3,7,8-PeCDF				
2,3,4,7,8-PeCDF				
Total PeCDF[c]	4.80E-13	1.03E-11	2.07E-11	**4.72E-12**
1,2,3,4,7,8-HxCDF				
1,2,3,6,7,8-HxCDF				
2,3,4,6,7,8-HxCDF				
1,2,3,7,8,9-HxCDF				
Total HxCDF[c]	2.00E-12	4.31E-11	8.61E-11	**1.97E-11**
1,2,3,4,6,7,8-HpCDF				
1,2,3,4,7,8,9-HpCDF				
Total HpCDF[c]	9.70E-12	2.09E-10	4.18E-10	**9.54E-11**
Octa CDF[c]	1.20E-11	2.58E-10	5.17E-10	**1.18E-10**
Total PCDF[c]	3.10E-11	6.67E-10	1.33E-09	**3.05E-10**
Total PCDD/PCDF[c]	2.30E-10	4.95E-09	9.90E-09	**2.26E-09**
Non-PAH HAPs				
Acetaldehyde[e]				
Acrolein[e]				
Benzene[e]				
1,3-Butadiene[e]				
Ethylbenzene[e]				
Formaldehyde[c,e]	3.50E-06	7.53E-05	1.51E-04	**3.44E-05**
Hexane[e]				
Isooctane				
Methyl Ethyl Ketone[e]				
Pentane[e]				
Propionaldehyde[e]				
Quinone[e]				
Methyl chloroform[e]				
Toluene[e]				
Xylene[e]				
POM (7-PAH Group)		2.15E-06		**9.83E-07**

Pollutant	Emission Factor[a] (lb/gal)	Emissions (lb/hr)	Emissions (T/yr)	TAPs Emissions (lb/hr) **Annual** or 24-hr Average
PAH HAPs				
2-Methylnaphthalene				
3-Methylchloranthrene[e]				
Acenaphthene[c]	5.30E-07	1.14E-05	2.28E-05	**5.21E-06**
Acenaphthylene[c]	2.00E-07	4.31E-06	8.61E-06	**1.97E-06**
Anthracene[c]	1.80E-07	3.88E-06	7.75E-06	**1.77E-06**
Benzo(a)anthracene				
Benzo(a)pyrene[e]				
Benzo(b)fluoranthene[c]	1.00E-07	2.15E-06	4.31E-06	**9.83E-07**
Benzo(e)pyrene				
Benzo(g,h,i)perylene				
Benzo(k)fluoranthene				
Chrysene				
Dibenzo(a.h)anthracene				
Dichlorobenzene				
Fluoranthene[c]	4.40E-08	9.47E-07	1.89E-06	**4.33E-07**
Fluorene[c]	3.20E-08	6.89E-07	1.38E-06	**3.15E-07**
Indeno(1,2,3-cd)pyrene				
Naphthalene[c,e]	1.70E-05	3.66E-04	7.32E-04	**1.67E-04**
Perylene				
Phenanthrene[c]	4.90E-06	1.05E-04	2.11E-04	**4.82E-05**
Pyrene[c]	3.20E-08	6.89E-07	1.38E-06	**3.15E-07**
Non-HAP Organic Compounds				
Acetone[e]				
Benzaldehyde				
Butane				
Butyraldehyde				
Crotonaldehyde[e]				
Ethylene				
Heptane				
Hexanal				
Isovaleraldehyde				
2-Methyl-1-pentene				
2-Methyl-2-butene				
3-Methylpentane				
1-Pentene				
n-Pentane				
Valeraldehyde				
Metals[f]				
Antimony[e]	5.25E-06	1.13E-04	2.26E-04	5.65E-05
Arsenic[e]	1.32E-06	2.84E-05	5.68E-05	**1.30E-05**
Barium[e]	2.57E-06	5.53E-05	1.11E-04	2.77E-05
Beryllium[e]	2.78E-08	5.98E-07	1.20E-06	**2.73E-07**
Cadmium[e]	3.98E-07	8.57E-06	1.71E-05	**3.91E-06**
Chromium[e]	8.45E-07	1.82E-05	3.64E-05	9.10E-06
Cobalt[e]	6.02E-06	1.30E-04	2.59E-04	6.48E-05
Copper[e]	1.76E-06	3.79E-05	7.58E-05	1.89E-05
Hexavalent Chromium[e]	2.48E-07	5.34E-06	1.07E-05	**2.44E-06**
Manganese[e]	3.00E-06	6.46E-05	1.29E-04	3.23E-05
Mercury[e]	1.13E-07	2.43E-06	4.87E-06	1.22E-06
Molybdenum[e]	7.87E-07	1.69E-05	3.39E-05	8.47E-06
Nickel[e]	8.45E-05	1.82E-03	3.64E-03	**8.31E-04**
Phosphorus[e]	9.46E-06	2.04E-04	4.07E-04	1.02E-04
Silver[e]				
Selenium[e]	6.83E-07	1.47E-05	2.94E-05	7.35E-06
Thallium[e]				
Vanadium[e]	3.18E-05	6.85E-04	1.37E-03	3.42E-04
Zinc[e]	2.91E-05	6.26E-04	1.25E-03	3.13E-04

a) Emission factors for criteria pollutants are from AP-42, 1.3, Fuel Oil Combustion, 9/98; all other factors are from AP-42 11.1, Hot Mix Asphalt Plants, 3/04
b) AP-42, Table 1.3-1, Criteria Pollutant Emission Factors for Fuel Oil Combustion, 9/98, Boilers < 100 MMBtu, SOx based on max fuel sulfur content, PM10 is 1.3 lb/1,000 gal + 50% of 2.0 lb/1,000 g
c) AP-42, Table 11.1-13, Emission Factors for Hot Mix Asphalt Hot Oil Systems, 3/04
d) AP-42, Table 1.3-3, Emission Factors for Total Organic Compounds (TOC), Methane, and Nonmethane TOC (NMTOC) from Uncontrolled Distillate Fuel Oil Combustion; Commercial Boiler
e) IDAPA Toxic Air Pollutant
f) AP-42, Table 1.3-11, Emission Factors for Metals from Uncontrolled No. 6 Fuel Oil Combustion

TAPs lb/hr rates are 24-hr averages except for those in bold text. Lb/hr rates for bold TAPs (carcinogens) are annual averages.

Facility: **Avail Valley Construction-ID, LLC - Driggs**
7/21/2021 13:32 **Permit/Facility ID: P-2021.0008 081-00009**

Asphalt Tank Heater - Natural Gas Fired, Estimated Emissions Using AP-42 Section 11.1 (Hot Mix Asphalt Plants)

Fuel Type Toggle = 0
Fuel Consumption Rate 2,892 scf/hr
Max Daily Operation 12 hr/day
Max Annual Operation 4,000 hrs/yr

Note: CO EF per AP-42 Table 1.4.1 for natural gas combustion in boilers is 84 lb/MMscf, a factor of 10 higher than the factor shown in Table 11.1-13
Tank heater CO emissions are based on using 84 lb/MMscf

Pollutant	Emission Factor[a] (lb/scf)	Emissions (lb/hr)	Emissions (T/yr)	TAPs Emissions (lb/hr) **Annual** or 24-hr Average
PM (total)				
PM-10 (total)				
PM-2.5				
CO [c]	**8.90E-06**	0.00E+00	0.00E+00	
NOx				
SO_2				
VOC				
Lead				
HCl [e]				
Dioxins[e]				
-- No EFs for Natural Gas Fuel --				
Furans[e]				
-- No EFs for Natural Gas Fuel --				
Non-PAH HAPs				
Acetaldehyde[e]				
Acrolein[e]				
Benzene[e]				
1,3-Butadiene[e]				
Ethylbenzene[e]				
Formaldehyde[c,e]	2.60E-08	0.00E+00	0.00E+00	**0.00E+00**
Hexane[e]				
Isooctane				
Methyl Ethyl Ketone[e]				
Pentane[e]				
Propionaldehyde[e]				
Quinone[e]				
Methyl chloroform[e]				
Toluene[e]				
Xylene[e]				
POM (7-PAH Group)		0.00E+00		**0.00E+00**

Pollutant	Emission Factor[a] (lb/scf)	Emissions (lb/hr)	Emissions (T/yr)	TAPs Emissions (lb/hr) **Annual** or 24-hr Average
PAH HAPs				
2-Methylnaphthalene				
3-Methylchloranthrene[e]				
Acenaphthene				
Acenaphthylene				
Anthracene				
Benzo(a)anthracene				
Benzo(a)pyrene[e]				
Benzo(b)fluoranthene				
Benzo(e)pyrene				
Benzo(g,h,I)perylene				
Benzo(k)fluoranthene				
Chrysene				
Dibenzo(a,h)anthracene				
Dichlorobenzene				
Fluoranthene				
Fluorene				
Indeno(1,2,3-cd)pyrene				
Naphthalene[e]				
Perylene				
Phenanthrene				
Pyrene				
Non-HAPs Organic Compounds				
Acetone[e]				
Benzaldehyde				
Butane				
Butyraldehyde				
Crotonaldehyde[e]				
Ethylene				
Heptane				
Hexanal				
Isovaleraldehyde				
2-Methyl-1-pentene				
2-Methyl-2-butene				
3-Methylpentane				
1-Pentene				
n-Pentane				
Valeraldehyde				
Metals				
Antimony[e]				
Arsenic[e]				
Barium[e]				
Beryllium[e]				
Cadmium[e]				
Chromium[e]				
Cobalt[e]				
Copper[e]				
Hexavalent Chromium[e]				
Manganese[e]				
Mercury[e]				
Molybdenum[e]				
Nickel[e]				
Phosphorus[e]				
Silver[e]				
Selenium[e]				
Thallium[e]				
Vanadium[e]				
Zinc[e]				

a) Emission factors are from AP-42
b) (reserved)
c) AP-42, Table 11.1-13, Emission Factors for Hot Mix Asphalt Hot Oil Systems, 3/04
d) (reserved)
e) IDAPA Toxic Air Pollutant

TAPs lb/hr rates are 24-hr averages except for those in bold text. Lb/hr rates for bold TAPs (carcinogens) are annual averages.

Facility: **Avail Valley Construction-ID, LLC - Driggs**
7/21/2021 13:32 **Permit/Facility ID: P-2021.0008 081-00009**

Asphalt Tank Heater - Natural Gas Fired, Estimated Emissions Using AP-42 Section 1.4 (Natural Gas Combustion)

Fuel Type Toggle = 0
Fuel Consumption Rate 2,892 scf/hr
Max Daily Operation 12 hr/day
Max Annual Operation 4,000 hrs/yr
Heating Value Correction: 1.000 applied to Emissions (lb/hr, T/yr) calculations

Note: CO EF per AP-42 Table 1.4.1 for natural gas combustion in boilers is 84 lb/MMscf, a factor of 10 higher than the factor shown in Table 11.1-13
Tank heater CO emissions are based on using 84 lb/MMscf

Pollutant	Emission Factor[a] (lb/MMscf)	Emissions (lb/hr)	Emissions (T/yr)	TAPs Emissions (lb/hr) **Annual** or 24-hr Average
PM (total)[c]	7.6	0.00E+00	0.00E+00	
PM-10 (total)[c]	7.6	0.00E+00	0.00E+00	
PM-2.5	7.6	0.00E+00	0.00E+00	
CO[b]	84	0.00E+00	0.00E+00	
NOx[b]	100	0.00E+00	0.00E+00	
SO_2[c]	0.6	0.00E+00	0.00E+00	
VOC[c]	5.5	0.00E+00	0.00E+00	
Lead[c]	5.00E-04	0.00E+00	0.00E+00	
HCl[e]				
Dioxins[e]				
-- No EFs for Natural Gas Fuel --				
Furans[e]				
-- No EFs for Natural Gas Fuel --				
Non-PAH HAPs[f]				
Acetaldehyde[e]				
Acrolein[e]				
Benzene[c1, e]	2.10E-03	0.00E+00	0.00E+00	**0.00E+00**
1,3-Butadiene[e]				
Ethylbenzene[e]				
Formaldehyde[e]	7.50E-02	0.00E+00	0.00E+00	**0.00E+00**
Hexane[e]	1.80E+00	0.00E+00	0.00E+00	0.00E+00
Isooctane				
Methyl Ethyl Ketone[e]				
Pentane[c1, e]	2.60E+00	0.00E+00	0.00E+00	0.00E+00
Propionaldehyde[e]				
Quinone[e]				
Methyl chloroform[e]				
Toluene[c1, e]	3.40E-03	0.00E+00	0.00E+00	0.00E+00
Xylene[e]				
POM (7-PAH Group)		0.00E+00		**0.00E+00**

Pollutant	Emission Factor[a] (lb/MMscf)	Emissions (lb/hr)	Emissions (T/yr)	TAPs Emissions (lb/hr) **Annual** or 24-hr Average
PAH HAPs[f]				
2-Methylnaphthalene[c1]	2.40E-05	0.00E+00	0.00E+00	**0.00E+00**
3-Methylchloranthrene[c1, e]	1.80E-06	0.00E+00	0.00E+00	**0.00E+00**
Acenaphthene[c1]	1.80E-06	0.00E+00	0.00E+00	**0.00E+00**
Acenaphthylene[c1]	1.80E-06	0.00E+00	0.00E+00	**0.00E+00**
Anthracene[c1]	2.40E-06	0.00E+00	0.00E+00	**0.00E+00**
Benzo(a)anthracene[c1]	1.80E-06	0.00E+00	0.00E+00	**0.00E+00**
Benzo(a)pyrene[c1, e]	1.20E-06	0.00E+00	0.00E+00	**0.00E+00**
Benzo(b)fluoranthenec[1]	1.80E-06	0.00E+00	0.00E+00	**0.00E+00**
Benzo(e)pyrene				
Benzo(g,h,I)perylene[c1]	1.20E-06	0.00E+00	0.00E+00	**0.00E+00**
Benzo(k)fluoranthene[c1]	1.80E-06	0.00E+00	0.00E+00	**0.00E+00**
Chrysene[c1]	1.80E-06	0.00E+00	0.00E+00	**0.00E+00**
Dibenzo(a,h)anthracene[c1]	1.20E-06	0.00E+00	0.00E+00	**0.00E+00**
Dichlorobenzene[c1]	1.20E-03	0.00E+00	0.00E+00	**0.00E+00**
Fluoranthene[c1]	3.00E-06	0.00E+00	0.00E+00	**0.00E+00**
Fluorene[c1]	2.80E-06	0.00E+00	0.00E+00	**0.00E+00**
Indeno(1,2,3-cd)pyrene[c1]	1.80E-06	0.00E+00	0.00E+00	**0.00E+00**
Naphthalene[c1, e]	6.10E-04	0.00E+00	0.00E+00	**0.00E+00**
Perylene				
Phenanthrene[c1]	1.70E-05	0.00E+00	0.00E+00	**0.00E+00**
Pyrene[c1]	5.00E-06	0.00E+00	0.00E+00	**0.00E+00**
Non-HAPs Organic Compounds[f]				
Acetone[e]				
Benzaldehyde				
Butane[c1]	2.10E+00	0.00E+00	0.00E+00	0.00E+00
Butyraldehyde				
Crotonaldehyde[e]				
Ethylene				
Heptane				
Hexanal				
Isovaleraldehyde				
2-Methyl-1-pentene				
2-Methyl-2-butene				
3-Methylpentane				
1-Pentene				
n-Pentane				
Valeraldehyde				
Metals[g]				
Antimony[e]				
Arsenic[d,e]	2.00E-04	0.00E+00	0.00E+00	**0.00E+00**
Barium[d,e]	4.40E-03	0.00E+00	0.00E+00	0.00E+00
Beryllium[e]	1.20E-05	0.00E+00	0.00E+00	**0.00E+00**
Cadmium[d,e]	1.10E-03	0.00E+00	0.00E+00	**0.00E+00**
Chromium[d,e]	1.40E-03	0.00E+00	0.00E+00	0.00E+00
Cobalt[d,e]	8.40E-05	0.00E+00	0.00E+00	0.00E+00
Copper[d,e]	8.50E-04	0.00E+00	0.00E+00	0.00E+00
Hexavalent Chromium[e]				
Manganese[d,e]				
Mercury[d,e]				
Molybdenum[d,e]	1.10E-03	0.00E+00	0.00E+00	0.00E+00
Nickel[d,e]				
Phosphorus[e]				
Silver[e]				
Selenium[d,e]				
Thallium[e]				
Vanadium[d,e]	2.30E-03	0.00E+00	0.00E+00	0.00E+00
Zinc[d,e]				

a) Emission factors are from AP-42
b) AP-42, Table 1.4-1, Emission Factors for NOx and CO from Natural Gas Combustion, 7/98
c) AP-42, Table 1.4-2, Emission Factors for Criteria Pollutants and Greenhouse Gases from Natural Gas Combustion, 7/98
c1) AP-42, Table 1.4-3, Emission Factors for Speciated Organic Compounds from Natural Gas Combustion, 7/98
d) AP-42, Table 1.4-4, Emission Factors for Metals from Natural Gas Combustion, 7/98
e) IDAPA Toxic Air Pollutant

TAPs lb/hr rates are 24-hr averages except for those in bold text. Lb/hr rates for bold TAPs (carcinogens) are annual averages.

Facility: **Avail Valley Construction-ID, LLC - Driggs**
7/21/2021 13:32 **Permit/Facility ID: P-2021.0008 081-00009**

Silo Filling Operations AP-42 Section 11.1

Emissions Toggle = 1
Max Hourly Production 250 T/hr
Max Daily Production 2,000 Tons/day
Max Annual Production 45,000 Tons/yr

Pollutant	Emission Factor[a] Silo Fill (lb/ton)	Emissions (lb/hr) 1-hr Average	Emissions (T/yr)	TAPs Emissions (lb/hr) **Annual** or 24-hr Average
PM (total)[b]	5.86E-04	0.1465	0.0132	
PM-10 (total)[b]	5.86E-04	0.1465	0.0132	
PM-2.5[b]	5.86E-04	0.1465	0.0132	
CO[b]	1.18E-03	0.2950	0.0265	
NOx				
SO_2				
VOC[d,g]	1.22E-04	3.05E-02	0.0027	
Lead				
HCl[d,e]	No Data			
Dioxins[e]				
2,3,7,8-TCDD				
Total TCDD				
1,2,3,7,8-PeCDD				
Total PeCDD				
1,2,3,4,7,8-HxCDD				
1,2,3,6,7,8-HxCDD				
1,2,3,7,8,9-HxCDD				
Total HxCDD				
1,2,3,4,6,7,8-Hp-CDD				
Total HpCDD				
Octa CDD				
Total PCDD[h]				
Furans[e]				
2,3,7,8-TCDF				
Total TCDF				
1,2,3,7,8-PeCDF				
2,3,4,7,8-PeCDF				
Total PeCDF				
1,2,3,4,7,8-HxCDF				
1,2,3,6,7,8-HxCDF				
2,3,4,6,7,8-HxCDF				
1,2,3,7,8,9-HxCDF				
Total HxCDF				
1,2,3,4,6,7,8-HpCDF				
1,2,3,4,7,8,9-HpCDF				
Total HpCDF				
Octa CDF				
Total PCDF[h]				
Total PCDD/PCDF[h]				
Non-PAH HAPs				
Acetaldehyde[e]				
Acrolein[e]				
Benzene[e]	3.90E-06	9.75E-04	8.77E-05	0.0000
1,3-Butadiene[e]				
Ethylbenzene[e]	4.63E-06	1.16E-03	1.04E-04	3.86E-04
Formaldehyde[e]	8.41E-05	2.10E-02	1.89E-03	0.0004
Hexane[e]	1.22E-05	3.05E-03	2.74E-04	1.02E-03
Isooctane	3.78E-08	9.44E-06	8.50E-07	3.15E-06
Methyl Ethyl Ketone[e]	4.75E-06	1.19E-03	1.07E-04	3.96E-04
Pentane[e]				
Propionaldehyde[e]				
Quinone[e]				
Methyl chloroform[e]		0.00E+00	0.00E+00	
Toluene[e]	7.56E-06	1.89E-03	1.70E-04	6.30E-04
Xylene[e]	3.13E-05	7.83E-03	7.05E-04	2.61E-03
POM (7-PAH Group)		1.69E-04		**3.47E-06**

Pollutant	Emission Factor[a] Silo Fill (lb/ton)	Emissions (lb/hr) 1-hr Average	Emissions (T/yr)	TAPs Emissions (lb/hr) **Annual** or 24-hr Average
PAH HAPs[f]				
2-Methylnaphthalene	1.34E-05	3.34E-03	3.01E-04	6.87E-05
3-Methylchloranthrene[e]				
Acenaphthene	1.19E-06	2.98E-04	2.68E-05	6.13E-06
Acenaphthylene	3.55E-08	8.89E-06	8.00E-07	1.83E-07
Anthracene	3.30E-07	8.25E-05	7.43E-06	1.70E-06
Benzo(a)anthracene	1.42E-07	3.55E-05	3.20E-06	7.30E-07
Benzo(a)pyrene[e]	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Benzo(b)fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Benzo(e)pyrene	2.41E-08	6.03E-06	5.43E-07	1.24E-07
Benzo(g,h,I)perylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Benzo(k)fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Chrysene	5.33E-07	1.33E-04	1.20E-05	2.74E-06
Dibenzo(a,h)anthracene	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Dichlorobenzene				
Fluoranthene	3.81E-07	9.52E-05	8.57E-06	1.96E-06
Fluorene	2.56E-06	6.41E-04	5.77E-05	1.32E-05
Indeno(1,2,3-cd)pyrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Naphthalene[e]	4.62E-06	1.16E-03	1.04E-04	2.37E-05
Perylene	7.62E-08	1.90E-05	1.71E-06	3.91E-07
Phenanthrene	4.57E-06	1.14E-03	1.03E-04	2.35E-05
Pyrene	1.12E-06	2.79E-04	2.51E-05	5.74E-06
Non-HAP Organic Compounds				
Acetone[e]	6.70E-06	1.68E-03	0.0002	5.59E-04
Benzaldehyde				
Butane				
Butyraldehyde				
Crotonaldehyde[e]				
Ethylene	1.34E-04	3.35E-02	0.0030	1.12E-02
Heptane				
Hexanal				
Isovaleraldehyde				
2-Methyl-1-pentene				
2-Methyl-2-butene				
3-Methylpentane				
1-Pentene				
n-Pentane				
Valeraldehyde				
Metals				
Antimony[e]				
Arsenic[e]				
Barium[e]				
Beryllium[e]				
Cadmium[e]				
Chromium[e]				
Cobalt[e]				
Copper[e]				
Hexavalent Chromium[e]				
Manganese[e]				
Mercury[e]				
Molybdenum[e]				
Nickel[e]				
Phosphorus[e]				
Silver[e]				
Selenium[e]				
Thallium[e]				
Vanadium[e]				
Zinc[e]				

a) Emission factors are from AP-42 11.1, Hot Mix Asphalt Plants, 3/04

b) AP-42, Table 11.1-14, Predictive Emission Factor Equations for Load-Out and Silo Filling Operations, 3/04 Defaults: (-V) = 0.5 T (°F) = 325

		LOADOUT	SILO FILL	
Total PM EF = $0.000181+0.00141(-V)e^{((0.0251)(T+460)-20.43)}$ + $000332+ 0.00105(-V)e^{((0.0251)(T+460)-20.$	=	5.219E-04	5.859E-04	(split addends)
Organic PM EF = $0.00141(-V)e^{((0.0251)(T+460)-20.43)}$ + $0.00105(-V)e^{((0.0251)(T+460)-20.43)}$	=	3.409E-04	2.539E-04	(split addends)
TOC PM EF = $0.0172(-V)e^{((0.0251)(T+460)-20.43)}$ + $0.0504(-V)e^{((0.0251)(T+460)-20.43)}$	=	4.159E-03	1.219E-02	(split addends)
CO PM EF = $0.00558(-V)e^{((0.0251)(T+460)-20.43)}$ + $0.00488(-V)e^{((0.0251)(T+460)-20.43)}$	=	1.349E-03	1.180E-03	(split addends)

e) IDAPA Toxic Air Pollutant

f) AP-42, Table 11.1-15, Speciation Profiles for Load-out, Silo Filling, & Asphalt Storage--Organic Particulate-Based Compounds, 3/04 (EF=Spec% * Organic PM EF)

g) AP-42, Table 11.1-16, Speciation Profiles for Load-out, Silo Filling, &Asphalt Storage--Organic Volatile-Based Compounds, 3/04, (EF=Spec% * TOC PM EF)

Pollutants shown in bold text are carcinogens subject to an annual standard. These lb/hr values are annual averages.

Pollutants shown in blue text are organic volatile-based compounds, EF = Spec% x TOC PM EF.

Facility: **Avail Valley Construction-ID, LLC - Driggs**
7/21/2021 13:32 **Permit/Facility ID: P-2021.0008 081-00009**

Silo Filling Operations AP-42 Section 11.1, Page 2

Fuel Type Toggle =	0	
Max Hourly Production	250	T/hr
Max Daily Production	2,000	Tons/day
Max Annual Production	45,000	Tons/yr

Pollutant	Emission Factor[a] Silo Fill (lb/ton)	Emissions (lb/hr) 1-hr Average	Emissions (T/yr)	TAPs Emissions (lb/hr) **Annual** or 24-hr Average
non-PAH HAPs[a]				
Bromomethane[e]	5.97E-07	1.49E-04	0.0000	4.98E-05
2-Butanone (see Methyl Ethyl Ketone)				
Carbon disulfide[e]	1.95E-06	4.87E-04	0.0000	1.62E-04
Chloroethane (Ethyl chloride[e])	4.87E-07	1.22E-04	0.0000	4.06E-05
Chloromethane (Methyl chloride[e])	2.80E-06	7.01E-04	0.0001	2.34E-04
Cumene[e]				
n-Hexane (see Hexane[e])				
Methylene chloride (Dichloromethane[e])	3.29E-08	8.23E-06	7.40E-07	2.74E-06
MTBE				
Styrene[e]	6.58E-07	1.65E-04	1.48E-05	5.48E-05
Tetrachloroethene (Tetrachloroethylene[e])	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,1,1-Trichloroethane (Methyl chloroform[e])	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Trichloroethene (Trichloroethylene[e])				
Trichlorofluoromethane				
m-/p-Xylene[e] (added into Xylene[e])	2.44E-05	6.09E-03	0.0005	2.03E-03
o-Xylene[e] (added into Xylene[e])	6.95E-06	1.74E-03	0.0002	5.79E-04
Phenol[e,f]				
Non-HAP Organic Compounds				
Methane	3.17E-03	7.92E-01	0.0713	2.64E-01

Pollutants shown in blue text are organic volatile-based compounds, EF = Spec% x TOC PM EF.

Facility: **Avail Valley Construction-ID, LLC - Driggs**
7/21/2021 13:32 **Permit/Facility ID: P-2021.0008 081-00009**

Load-out Operations AP-42 Section 11.1

Emissions Toggle = 1
Max Hourly Production 250 T/hr
Max Daily Production 2,000 Tons/day
Max Annual Production 45,000 Tons/yr

Pollutant	Emission Factor[a] Loadout (lb/ton)	Emissions (lb/hr) 1-hr Average	Emissions (T/yr)	TAPs Emissions (lb/hr) **Annual** or 24-hr Average
PM (total) [b]	5.22E-04	0.130	0.01	
PM-10 (total) [b]	5.22E-04	0.130	0.01	
PM-2.5 [b]	5.22E-04	0.130	0.01	
CO [b]	1.35E-03	0.337	0.03	
NOx				
SO_2				
VOC [d,g]	3.91E-03	0.977	0.09	
Lead				
HCl [d,e]	No Data			
Dioxins[e]				
2,3,7,8-TCDD				
Total TCDD				
1,2,3,7,8-PeCDD				
Total PeCDD				
1,2,3,4,7,8-HxCDD				
1,2,3,6,7,8-HxCDD				
1,2,3,7,8,9-HxCDD				
Total HxCDD				
1,2,3,4,6,7,8-Hp-CDD				
Total HpCDD				
Octa CDD				
Total PCDD[h]				
Furans[e]				
2,3,7,8-TCDF				
Total TCDF				
1,2,3,7,8-PeCDF				
2,3,4,7,8-PeCDF				
Total PeCDF				
1,2,3,4,7,8-HxCDF				
1,2,3,6,7,8-HxCDF				
2,3,4,6,7,8-HxCDF				
1,2,3,7,8,9-HxCDF				
Total HxCDF				
1,2,3,4,6,7,8-HpCDF				
1,2,3,4,7,8,9-HpCDF				
Total HpCDF				
Octa CDF				
Total PCDF[h]				
Total PCDD/PCDF[h]				
Non-PAH HAPs				
Acetaldehyde[e]				
Acrolein[e]				
Benzene[e]	2.16E-06	5.41E-04	4.87E-05	**1.11E-05**
1,3-Butadiene[e]				
Ethylbenzene[e]	1.16E-05	2.91E-03	2.62E-04	9.70E-04
Formaldehyde[e]	3.66E-06	9.15E-04	8.23E-05	**1.88E-05**
Hexane[e]	6.24E-06	1.56E-03	1.40E-04	5.20E-04
Isooctane	7.49E-08	1.87E-05	1.68E-06	6.24E-06
Methyl Ethyl Ketone[e]	2.04E-06	5.09E-04	4.59E-05	1.70E-04
Pentane[e]				
Propionaldehyde[e]				
Quinone[e]				
Methyl chloroform[e]				
Toluene[e]	8.73E-06	2.18E-03	1.97E-04	7.28E-04
Xylene[e]	5.03E-05	1.26E-02	1.13E-03	4.19E-03
POM (7-PAH Group)		1.15E-04		**2.36E-06**

Pollutant	Emission Factor[a] Loadout (lb/ton)	Emissions (lb/hr) 1-hr Average	Emissions (T/yr)	TAPs Emissions (lb/hr) **Annual** or 24-hr Average
PAH HAPs[f]				
2-Methylnaphthalene	8.11E-06	2.03E-03	1.83E-04	**4.17E-05**
3-Methylchloranthrene[e]				
Acenaphthene	8.86E-07	2.22E-04	1.99E-05	**4.55E-06**
Acenaphthylene	9.55E-08	2.39E-05	2.15E-06	**4.90E-07**
Anthracene	2.39E-07	5.97E-05	5.37E-06	**1.23E-06**
Benzo(a)anthracene	6.48E-08	1.62E-05	1.46E-06	**3.33E-07**
Benzo(a)pyrene[e]	7.84E-09	1.96E-06	1.76E-07	**4.03E-08**
Benzo(b)fluoranthene	2.59E-08	6.48E-06	5.83E-07	**1.33E-07**
Benzo(e)pyrene	2.66E-08	6.65E-06	5.98E-07	**1.37E-07**
Benzo(g,h,I)perylene	6.48E-09	1.62E-06	1.46E-07	**3.33E-08**
Benzo(k)fluoranthene	7.50E-09	1.88E-06	1.69E-07	**3.85E-08**
Chrysene	3.51E-07	8.78E-05	7.90E-06	**1.80E-06**
Dibenzo(a,h)anthracene	1.26E-09	3.15E-07	2.84E-08	**6.48E-09**
Dichlorobenzene				
Fluoranthene	1.70E-07	4.26E-05	3.84E-06	**8.76E-07**
Fluorene	2.63E-06	6.56E-04	5.91E-05	**1.35E-05**
Indeno(1,2,3-cd)pyrene	1.60E-09	4.01E-07	3.61E-08	**8.23E-09**
Naphthalene[e]	4.26E-06	1.07E-03	9.59E-05	**2.19E-05**
Perylene	7.50E-08	1.88E-05	1.69E-06	**3.85E-07**
Phenanthrene	2.76E-06	6.90E-04	6.21E-05	**1.42E-05**
Pyrene	5.11E-07	1.28E-04	1.15E-05	**2.63E-06**
Non-HAP Organic Compounds				
Acetone[e]	1.95E-06	4.87E-04	4.38E-05	1.62E-04
Benzaldehyde				
Butane				
Butyraldehyde				
Crotonaldehyde[e]				
Ethylene	2.95E-05	7.38E-03	6.64E-04	2.46E-03
Heptane				
Hexanal				
Isovaleraldehyde				
2-Methyl-1-pentene				
2-Methyl-2-butene				
3-Methylpentane				
1-Pentene				
n-Pentane				
Valeraldehyde				
Metals				
Antimony[e]				
Arsenic[e]				
Barium[e]				
Beryllium[e]				
Cadmium[e]				
Chromium[e]				
Cobalt[e]				
Copper[e]				
Hexavalent Chromium[e]				
Manganese[e]				
Mercury[e]				
Molybdenum[e]				
Nickel[e]				
Phosphorus[e]				
Silver[e]				
Selenium[e]				
Thallium[e]				
Vanadium[e]				
Zinc[e]				

a) Emission factors are from AP-42 11.1, Hot Mix Asphalt Plants, 3/04

b) AP-42, Table 11.1-14, Predictive Emission Factor Equations for Load-Out and Silo Filling Operations, 3/04 Defaults: (-V) = 0.5 T (^{o}F) = 325

	LOADOUT	SILO FILL	
Total PM EF = $0.000181+0.00141(-V)e^{((0.0251)(T+460)-20.43)}$ + $000332+ 0.00105(-V)e^{((0.0251)(T+460)-20.}$ =	5.219E-04	5.859E-04	(split addends)
Organic PM EF = $0.00141(-V)e^{((0.0251)(T+460)-20.43)}$ + $0.00105(-V)e^{((0.0251)(T+460)-20.43)}$ =	3.409E-04	2.539E-04	(split addends)
TOC PM EF = $0.0172(-V)e^{((0.0251)(T+460)-20.43)}$ + $0.0504(-V)e^{((0.0251)(T+460)-20.43)}$ =	4.159E-03	1.219E-02	(split addends)
CO PM EF = $0.00558(-V)e^{((0.0251)(T+460)-20.43)}$ + $0.00488(-V)e^{((0.0251)(T+460)-20.43)}$ =	1.349E-03	1.180E-03	(split addends)

e) IDAPA Toxic Air Pollutant

f) AP-42, Table 11.1-15, Speciation Profiles for Load-out, Silo Filling, & Asphalt Storage--Organic Particulate-Based Compounds, 3/04 (EF=Spec% * Organic PM EF)

g) AP-42, Table 11.1-16, Speciation Profiles for Load-out, Silo Filling, &Asphalt Storage--Organic Volatile-Based Compounds, 3/04, (EF=Spec% * TOC PM EF)

TAPs lb/hr rates are 24-hr averages except for those in bold text. Lb/hr rates for bold TAPs (carcinogens) are annual averages.

Pollutants shown in blue text are organic volatile-based compounds, EF = Spec% x TOC PM EF.

Facility: **Avail Valley Construction-ID, LLC - Driggs**
7/21/2021 13:32 **Permit/Facility ID: P-2021.0008 081-00009**

Load-out Operations AP-42 Section 11.1, Page 2

Fuel Type Toggle =	0	
Max Hourly Production	250	T/hr
Max Daily Production	2,000	Tons/day
Max Annual Production	45,000	Tons/yr

Pollutant	Emission Factor[a] Loadout (lb/ton)	Emissions (lb/hr) 1-hr Average	Emissions (T/yr)	TAPs Emissions (lb/hr) **Annual** or 24-hr Average
non-PAH HAPs[g]				
Bromomethane[e]	3.99E-07	9.98E-05	8.98E-06	3.33E-05
2-Butanone (see Methyl Ethyl Ketone)				
Carbon disulfide[e]	5.41E-07	1.35E-04	1.22E-05	4.51E-05
Chloroethane (Ethyl chloride[e])	8.73E-09	2.18E-06	1.97E-07	7.28E-07
Chloromethane (Methyl chloride[e])	6.24E-07	1.56E-04	1.40E-05	5.20E-05
Cumene[e]	4.57E-06	1.14E-03	1.03E-04	3.81E-04
n-Hexane (see Hexane[e])				
Methylene chloride (Dichloromethane[e])				
MTBE				
Styrene[e]	3.04E-07	7.59E-05	6.83E-06	2.53E-05
Tetrachloroethene (Tetrachloroethylene[e])	3.20E-07	8.01E-05	7.21E-06	2.67E-05
1,1,1-Trichloroethane (Methyl chloroform[e])				
Trichloroethene (Trichloroethylene[e])				
Trichlorofluoromethane	5.41E-08	1.35E-05	1.22E-06	4.51E-06
m-/p-Xylene[e] (added into Xylene[e])	1.71E-05	4.26E-03	3.84E-04	1.42E-03
o-Xylene[e] (added into Xylene[e])	3.33E-05	8.32E-03	7.49E-04	2.77E-03
Phenol[e,f]	4.02E-06	1.01E-03	9.05E-05	3.35E-04
Non-HAP Organic Compounds				
Methane	2.70E-04	6.76E-02	6.08E-03	2.25E-02

Pollutants shown in blue text are organic volatile-based compounds, EF = Spec% x TOC PM EF.

TAPs lb/hr rates are 24-hr averages except for those in bold text. Lb/hr rates for bold TAPs (carcinogens) are annual averages.

Facility: **Avail Valley Construction-ID, LLC - Driggs**
7/21/2021 13:32 **Permit P-2021.0008** **Facility ID: 081-00009**

G1 Electrical Generator < 600 hp (447 kW)

Fuel Type Toggle =	1	
Fuel Consumption Rate	2.04	gal/hr
Calculated MMBtu/hr	0.280	MMBtu/hr
Max Daily Operation	10	hr/day
Max Annual Operation	2,000	hrs/yr

Rated Power (kW): **30**

Not EPA Certified:	Yes
Certified EPA Tier 1:	No
Certified EPA Tier 2:	No
Certified EPA Tier 3:	No
Certified EPA Tier 4*:	No
Blue Sky Engine:	No

Conversion Factors:

Avg brake-specific fuel consumption (BSFC) =	7000	Btu/hp-hr
1 hp =	0.746	kW
1 lb =	453.592	g

g/kW-hr x (lb/453g) x (hp-hr/7000 Btu) x (0.746 kW/hp) x 10^6 Btu/MMBtu = lb/MMBtu
g/kW-hr x 0.23486 = lb/MMBtu

**Tier 4 emission factors from https://www.epa.gov/sites/production/files/2018-02/documents/02-update-tier-4-nonroad-diesel-engines-2017-12-06.pdf and 40 CFR 1039.101*

Pollutant:	NOx	VOC (total TOC--> VOCs)		CO	PM = PM10
EMISSION FACTORS USED FOR G1 (lb/MMBtu):	**4.41**	**0.36**		**0.95**	**0.310**

AP-42, Ch 3.3 (10/96) EMISSION FACTORS (diesel fueled)

Pollutant:	NOx	VOC (total TOC--> VOCs)		CO	PM = PM10
Emission Factor (lb/MMBtu)	4.41	0.36		0.95	0.31
Emission Factor (g/kW-hr))	18.78	1.53		4.05	1.32

40 CFR 89, EPA CERTIFIED GENERATOR EMISSION FACTORS (g/kW-hr converted to lb/MMBtu)

Rated Power (kW)	Tier	Applicable?	Model Year[1]	NOx	HC	NMHC + NOx	CO	PM = PM10
kW< 8	1	0	2000	---	*0.36*	2.47	1.88	0.23
kW< 8	2	0	2005	---	*0.36*	1.76	1.88	0.09
kW< 8	4	0	2008	---	*0.36*	1.76	1.88	0.19
kW< 8	BlueSky	0	n/a	---	*0.36*	1.08	*1.88*	0.11
8 ≤ kW < 19	1	0	2000	---	*0.36*	2.23	1.55	0.19
8 ≤ kW < 19	2	0	2005	---	*0.36*	1.76	1.55	0.19
8 < kW < 19	4	0	2008	---	*0.36*	1.76	1.55	0.09
8 ≤ kW < 19	BlueSky	0	n/a	---	*0.36*	1.06	*1.55*	0.11
19 ≤ kW < 37	1	0	1999	---	*0.36*	2.23	1.29	0.19
19 ≤ kW < 37	2	0	2004	---	*0.36*	1.76	1.29	0.14
19 < kW < 37	4	0	2008	---	*0.36*	1.76	1.29	0.07
19 < kW < 37	4	0	2013	---	*0.36*	1.10	1.29	0.01
19 ≤ kW < 37	BlueSky	0	n/a	---	*0.36*	1.06	*1.29*	0.085
37 ≤ kW < 56	1	0	1998	2.16	*0.36*	---	*0.95*	*0.31*
37 ≤ kW < 56	2	0	2004	---	*0.36*	1.76	1.17	0.09
37 ≤ kW < 56	3	0	2008	---	*0.36*	1.10	1.17	0.09
37 ≤ kW < 56	4	0	2008	---	*0.36*	1.10	1.17	0.07
37 ≤ kW < 56	4	0	2012	---	*0.36*	1.10	1.17	0.07
37 ≤ kW < 56	4	0	2013	---	*0.36*	1.10	1.17	0.01
37 ≤ kW < 56	BlueSky	0	n/a	---	*0.36*	1.10	*1.17*	0.056
56 ≤ kW < 75	1	0	1998	2.16	*0.36*	---	*0.95*	*0.31*
56 ≤ kW < 75	2	0	2004	---	*0.36*	1.76	1.17	0.09
56 ≤ kW < 75	3	0	2008	---	*0.36*	1.10	1.17	0.09
56 ≤ kW < 75	4	0	2012	---	0.04	0.80	1.17	0.005
56 ≤ kW < 75	4	0	2015	0.80	0.04	--	1.17	0.005
56 ≤ kW < 75	BlueSky	0	n/a	---	*0.36*	1.10	*1.17*	0.056
75 ≤ kW < 130	1	0	1997	2.16	*0.36*	---	*0.95*	*0.31*
75 ≤ kW < 130	2	0	2003	---	*0.36*	1.55	1.17	0.07
75 ≤ kW < 130	3	0	2007	---	*0.36*	0.94	1.17	0.07
75 ≤ kW < 130	4	0	2012	---	0.04	0.80	1.17	0.005
75 ≤ kW < 130	4	0	2015	0.80	0.04	--	1.17	0.005
75 ≤ kW < 130	BlueSky	0	n/a	---	*0.36*	0.94	1.17	0.042
130 ≤ kW < 225	1	0	1996	2.16	0.31	---	2.68	0.13
130 ≤ kW < 225	2	0	2003	---	*0.31*	1.55	0.82	0.05
130 ≤ kW < 225	3	0	2006	---	*0.31*	0.94	0.82	0.05
130 ≤ kW < 225	4	0	2011	0.47	0.04	---	0.82	0.005
130 ≤ kW < 225	4	0	2014	0.47	0.04	---	0.82	0.005
130 ≤ kW ≤ 560	BlueSky	0	n/a	---	*0.31*	0.94	*0.82*	0.028
225 ≤ kW < 450	1	0	1996	2.16	0.31	---	2.68	0.13
225 ≤ kW < 450	2	0	2001	---	*0.31*	1.50	0.82	0.05
225 ≤ kW < 450	3	0	2006	---	*0.31*	0.94	0.82	0.05
225 ≤ kW < 450	4	0	2011	0.47	0.04	---	0.82	0.05
225 ≤ kW < 450	4	0	2014	0.47	0.04		0.82	0.05

40 CFR 89, EPA CERTIFIED GENERATOR EMISSION FACTORS FOR GENERATOR G1 (lb/MMBtu)

Rated Power (kW)	Tier	Applicable?	Model Year[1]	NOx	HC	NMHC + NOx	CO	PM10
kW< 8	1	0	2000	0.00	0.00	0.00	0.00	0.00
kW< 8	2	0	2005	0.00	0.00	0.00	0.00	0.00
kW< 8	4	0	2008	0.00	0.00	0.00	0.00	0.00
kW< 8	BlueSky	0	n/a	0.00	0.00	0.00	0.00	0.00
8 ≤ kW < 19	1	0	2000	0.00	0.00	0.00	0.00	0.00
8 ≤ kW < 19	2	0	2005	0.00	0.00	0.00	0.00	0.00
8 < kW < 19	4	0	2008	0.00	0.00	0.00	0.00	0.00
8 ≤ kW < 19	BlueSky	0	n/a	0.00	0.00	0.00	0.00	0.00
19 ≤ kW < 37	1	0	1999	0.00	0.00	0.00	0.00	0.00
19 ≤ kW < 37	2	0	2004	0.00	0.00	0.00	0.00	0.00
19 ≤ kW < 37	4	0	2008	0.00	0.00	0.00	0.00	0.00
19 < kW < 37	4	0	2013	0.00	0.00	0.00	0.00	0.00
19 ≤ kW < 37	BlueSky	0	n/a	0.00	0.00	0.00	0.00	0.00
37 ≤ kW < 56	1	0	1998	0.00	0.00	0.00	0.00	0.00
37 ≤ kW < 56	2	0	2004	0.00	0.00	0.00	0.00	0.00
37 ≤ kW < 56	3	0	2008	0.00	0.00	0.00	0.00	0.00
37 ≤ kW < 56	4	0	2008	0.00	0.00	0.00	0.00	0.00
37 ≤ kW < 56	4	0	2012	0.00	0.00	0.00	0.00	0.00
37 ≤ kW < 56	4	0	2013	0.00	0.00	0.00	0.00	0.00
37 ≤ kW < 56	BlueSky	0	n/a	0.00	0.00	0.00	0.00	0.00
56 ≤ kW < 75	1	0	1998	0.00	0.00	0.00	0.00	0.00
56 ≤ kW < 75	2	0	2004	0.00	0.00	0.00	0.00	0.00
56 ≤ kW < 75	3	0	2008	0.00	0.00	0.00	0.00	0.00
56 ≤ kW < 75	4	0	2012	0.00	0.00	0.00	0.00	0.00
56 ≤ kW < 75	4	0	2015	0.00	0.00	0.00	0.00	0.00

Facility: **Avail Valley Construction-ID, LLC - Driggs**
7/21/2021 13:32 **Permit/Facility ID: P-2021.0008 081-00009**

IC Engine 1 Powering an Electrical Generator < 600 hp (447 kW) AP-42 Section 3.3 (diesel fueled)

Fuel Type Toggle = 1 30 kw User Input Weight % Sulfur = 0.0500%
Fuel Consumption Rate 2.04 gal/hr AP-42 3.3 SO2 EF = 0.29 for #2 fuel oil, presumed max 0.5%
Calculated MMBtu/hr 0.280 MMBtu/hr SO2 emissions are multiplied by a factor: User Input Value/0.5% = 0.10
Max Daily Operation 10 hr/day Not an EPA-Certified Generator
Max Annual Operation 2,000 hrs/yr

Pollutant	Emission Factor[a] (lb/MMBtu)	Emissions (lb/hr)	Emissions (T/yr)	TAPs Emissions (lb/hr) **Annual** or 24-hr Average
PM (total) [b]	0.31	0.087	8.68E-02	
PM-10 (total) [b]	0.31	0.087	8.68E-02	
PM-2.5	0.07	0.020	1.96E-02	
CO [b]	0.95	0.266	2.66E-01	
NOx[b]	4.41	1.235	1.235E+00	
SO_2 [b] (total SOx presumed SO2)	0.29	8.12E-03	8.12E-04	
VOC [b] (total TOC--> VOCs)	0.36	0.101	1.01E-01	
Lead				
HCl [e]				
Dioxins[e]				
2,3,7,8-TCDD				
Total TCDD				
1,2,3,7,8-PeCDD				
Total PeCDD				
1,2,3,4,7,8-HxCDD[c]				
1,2,3,6,7,8-HxCDD				
1,2,3,7,8,9-HxCDD[c]				
Total HxCDD				
1,2,3,4,6,7,8-Hp-CDD[c]				
Total $HpCDD_c$				
Octa CDD[c]				
Total PCDD[c]				
Furans[e]				
2,3,7,8-TCDF				
Total TCDF[c]				
1,2,3,7,8-PeCDF				
2,3,4,7,8-PeCDF				
Total PeCDF[c]				
1,2,3,4,7,8-HxCDF				
1,2,3,6,7,8-HxCDF				
2,3,4,6,7,8-HxCDF				
1,2,3,7,8,9-HxCDF				
Total HxCDF[c]				
1,2,3,4,6,7,8-HpCDF				
1,2,3,4,7,8,9-HpCDF				
Total HpCDF[c]				
Octa CDF[c]				
Total PCDF[c]				
Total PCDD/PCDF[c]				
Non-PAH HAPs				
Acetaldehyde[c]	7.67E-04	2.15E-04	2.15E-04	**4.90E-05**
Acrolein[c]	9.25E-05	2.59E-05	2.59E-05	1.08E-05
Benzene[c,e]	9.33E-04	2.61E-04	2.61E-04	**5.96E-05**
1,3-Butadiene[c,e]	3.91E-05	1.09E-05	1.09E-05	**2.50E-06**
Ethylbenzene[e]				
Formaldehyde[c,e]	1.18E-03	3.30E-04	3.30E-04	**7.54E-05**
Hexane[e]				
Isooctane				
Methyl Ethyl Ketone[e]				
Pentane[e]				
Propionaldehyde[e]				
Quinone[e]				
Methyl chloroform[e]				
Toluene[c,e]	4.09E-04	1.15E-04	1.15E-04	4.77E-05
Xylene[c,e]	2.85E-04	7.98E-05	7.98E-05	3.33E-05
POM (7-PAH Group)		9.61E-07		**2.19E-07**

Pollutant	Emission Factor[a] (lb/MMBtu)	Emissions (lb/hr)	Emissions (T/yr)	TAPs Emissions (lb/hr) **Annual** or 24-hr Average
PAH HAPs				
2-Methylnaphthalene				
3-Methylchloranthrene[e]				
Acenaphthene[c]	1.42E-06	3.98E-07	3.98E-07	**9.08E-08**
Acenaphthylene[c]	5.06E-06	1.42E-06	1.42E-06	**3.23E-07**
Anthracene[c]	1.87E-06	5.24E-07	5.24E-07	**1.20E-07**
Benzo(a)anthracene[c]	1.68E-06	4.70E-07	4.70E-07	**1.07E-07**
Benzo(a)pyrene[c,e]	1.88E-07	5.26E-08	5.26E-08	**1.20E-08**
Benzo(b)fluoranthene[c]	9.91E-08	2.77E-08	2.77E-08	**6.34E-09**
Benzo(e)pyrene				
Benzo(g,h,I)perylene[c]	4.89E-07	1.37E-07	1.37E-07	**3.13E-08**
Benzo(k)fluoranthene[c]	1.55E-07	4.34E-08	4.34E-08	**9.91E-09**
Chrysene[c]	3.53E-07	9.88E-08	9.88E-08	**2.26E-08**
Dibenzo(a,h)anthracene[c]	5.83E-07	1.63E-07	1.63E-07	**3.73E-08**
Dichlorobenzene				
Fluoranthene[c]	7.61E-06	2.13E-06	2.13E-06	**4.86E-07**
Fluorene[c]	2.92E-05	8.18E-06	8.18E-06	**1.87E-06**
Indeno(1,2,3-cd)pyrene[c]	3.75E-07	1.05E-07	1.05E-07	**2.40E-08**
Naphthalene[c,e]	8.48E-05	2.37E-05	2.37E-05	**5.42E-06**
Perylene				
Phenanthrene[c]	2.94E-05	8.23E-06	8.23E-06	**1.88E-06**
Pyrene[c]	4.78E-06	1.34E-06	1.34E-06	**3.06E-07**
Non-HAP Organic Compounds				
Acetone[e]				
Benzaldehyde				
Butane				
Butyraldehyde				
Crotonaldehyde[e]				
Ethylene				
Heptane				
Hexanal				
Isovaleraldehyde				
2-Methyl-1-pentene				
2-Methyl-2-butene				
3-Methylpentane				
1-Pentene				
n-Pentane				
Valeraldehyde				
Metals				
Antimony[e]				
Arsenic[e]				
Barium[e]				
Beryllium[e]				
Cadmium[e]				
Chromium[e]				
Cobalt[e]				
Copper[e]				
Hexavalent Chromium[e]				
Manganese[e]				
Mercury[e]				
Molybdenum[e]				
Nickel[e]				
Phosphorus[e]				
Silver[e]				
Selenium[e]				
Thallium[e]				
Vanadium[e]				
Zinc[e]				

a) Emission factors are from AP-42
b) AP-42, Table 3.3-1, Emission Factors for Uncontrolled Gasoline and Diesel Industrial Engines, 10/96
c) AP-42, Table 3.3-2, Speciated Organic Compoun Emission Factors for Uncontrolled Diesel Engine, **Emission Factor Rating E**, 10/96
d) (reserved)
e) IDAPA Toxic Air Pollutant

TAPs lb/hr rates are 24-hr averages except for those in bold text. Lb/hr rates for bold TAPs (carcinogens) are annual averages.

Facility: **Avail Valley Construction-ID, LLC · Facility ID: 081-00009**
7/21/2021 13:32 **Permit P-2021.0008**

G2 Electrical Generator > 600 hp (447 kW)

Fuel Type Toggle =	1	
Fuel Consumption Rate	45.77	gal/hr
Calculated MMBtu/hr	6.27	MMBtu/hr
Max Daily Operation	10	hr/day
Max Annual Operation	1,000	hrs/yr

Rated Power (kW):	**668**
Not EPA Certified:	Yes
Certified EPA Tier 1:	No
Certified EPA Tier 2:	No
Certified EPA Tier 3:	No
Certified EPA Tier 4*	No
Blue Sky Engine:	No

Conversion Factors:

Avg brake-specific fuel consumption (BSFC) =	7000	Btu/hp-hr
1 hp =	0.746	kW
1 lb =	453.592	g

g/kW-hr x (lb/453g) x (hp-hr/7000 Btu) x (0.746 kW/hp) x 10^6 Btu/MMBtu = lb/MMBtu
g/kW-hr x 0.23486 = lb/MMBtu

**Tier 4 emission factors from https://www.epa.gov/sites/production/files/2018-02/documents/02-update-tier-4-nonroad-diesel-engines-2017-12-06.pdf and 40 CFR 1039.101;Genset EF'*

Pollutant:	**NOx**	**VOC (total TOC--> VOCs)**		**CO**	**PM=PM10**
EMISSION FACTORS USED FOR G2 (lb/MMBtu):	**3.20**	**0.09**		**0.85**	**0.130**

AP-42, Ch 3.4 (10/96) EMISSION FACTORS (diesel fueled, uncontrolled)

Pollutant:	**NOx**	**VOC (total TOC--> VOCs)**		**CO**	**PM10**
Emission Factor (lb/MMBtu)	3.2	0.09		0.85	0.13
Emission Factor (g/kW-hr))	13.63	0.38		3.62	0.55

Note: Rating for AP-42 PM10 EF of 0.0573 is "E" or Poor. Used Tier 1 PM EF and presumed PM = PM10

40 CFR 89, EPA CERTIFIED GENERATOR EMISSION FACTORS (g/kW-hr converted to lb/MMBtu)

Rated Power (kW)	**Tier**	**Applicable?**	**Model Year[1]**	**NOx**	**HC**	**NMHC + NOx**	**CO**	**PM = PM10**
130 ≤ kW ≤ 560	BlueSky	0	n/a	---	*0.31*	0.94	*0.82*	0.028
225 ≤ kW < 450	1	0	1996	2.16	0.31	---	2.68	0.13
225 ≤ kW < 450	2	0	2001	---	*0.31*	1.50	0.82	0.05
225 ≤ kW < 450	3	0	2006	---	*0.31*	0.94	0.82	0.05
225 ≤ kW < 450	4	0	2011	0.47	0.04	---	0.82	0.05
225 ≤ kW < 450	4	0	2014	0.47	0.04		0.82	0.05
450 ≤ kW ≤ 560	1	0	1996	2.16	0.31	---	2.68	0.13
450 ≤ kW ≤ 560	2	0	2002	---	*0.31*	1.50	0.82	0.05
450 ≤ kW ≤ 560	3	0	2006	---	*0.31*	0.94	0.82	0.05
450 < kW < 560	4	0	2011	0.47	0.04	---	0.82	0.005
450 ≤ kW ≤ 560	4	0	2014	0.47	0.04	---	0.82	0.005
kW > 560	1	0	2000	2.16	0.31	---	2.68	0.13
kW > 560	2	0	2006	---	*0.31*	1.50	0.82	0.05
kW > 560	4	0	2011	0.82	0.04	---	0.82	0.01
kW > 560*	4	0	2014	0.16	0.04	---	0.82	0.01
kW > 560	BlueSky	0	n/a	---	*0.31*	0.89	*0.82*	0.028

*Tier 4 final emission factors from 40 CFR 1039.101 for engines that are part of gensets

40 CFR 89, EPA CERTIFIED GENERATOR EMISSION FACTORS FOR GENERATOR G2 (lb/MMBtu)

Rated Power (kW)	**Tier**	**Applicable?**	**Model Year[1]**	**NOx**	**HC**	**NMHC + NOx**	**CO**	**PM10**
130 ≤ kW ≤ 560	BlueSky	0	n/a	0.00	0.00	0.00	0.00	0.00
225 ≤ kW < 450	1	0	1996	0.00	0.00	0.00	0.00	0.00
225 ≤ kW < 450	2	0	2001	0.00	0.00	0.00	0.00	0.00
225 ≤ kW < 450	3	0	2006	0.00	0.00	0.00	0.00	0.00
225 ≤ kW < 450	4	0	2011	0.00	0.00	0.00	0.00	0.00
225 ≤ kW < 450	4	0	2014	0.00	0.00	0.00	0.00	0.00
450 ≤ kW ≤ 560	1	0	1996	0.00	0.00	0.00	0.00	0.00
450 ≤ kW ≤ 560	2	0	2002	0.00	0.00	0.00	0.00	0.00
450 ≤ kW ≤ 560	3	0	2006	0.00	0.00	0.00	0.00	0.00
450 ≤ kW ≤ 560	4	0	2011	0.00	0.00	0.00	0.00	0.00
450 ≤ kW ≤ 560	4	0	2014	0.00	0.00	0.00	0.00	0.00
kW > 560	1	0	2000	0.00	0.00	0.00	0.00	0.00
kW > 560	2	0	2006	0.00	0.00	0.00	0.00	0.00
kW > 560	4	0	2011	0.00	0.00	0.00	0.00	0.00
kW > 560	4	0	2015	0.00	0.00	0.00	0.00	0.00
kW > 560	BlueSky	0	n/a	0.00	0.00	0.00	0.00	0.00
EMISSION FACTORS FOR GENERATOR G2 (lb/MMBTU):				**0.00**	**0.00**	**0.00**	**0.00**	**0.000**

Facility: **Avail Valley Construction-ID, LLC - Driggs**
7/21/2021 13:32 **Permit/Facility ID: P-2021.0008 081-00009**

IC Engine 2 Powering an Electrical Generator > 600 hp (447 kW) AP-42 Section 3.4 (diesel fueled, uncontrolled)

Fuel Type Toggle = 1 668 kw User Input Weight % Sulfur = 0.0500%
Fuel Consumption Rate 45.77 gal/hr AP-42 3.4-1 SO2 EF = 1.01 x S
Calculated MMBtu/hr 6.27 MMBtu/hr
Max Daily Operation 10 hr/day Not an EPA-Certified Generator
Max Annual Operation 1,000 hrs/yr

Pollutant	Emission Factor[a] (lb/MMBtu)	Emissions (lb/hr)	Emissions (T/yr)	TAPs Emissions (lb/hr) **Annual** or 24-hr Average
PM [b]	0.1	0.627	3.14E-01	7.16E-02
PM-10 (total) [d]	0.13	0.815	4.08E-01	9.31E-02
PM-2.5	0.0556	0.349	1.74E-01	3.98E-02
CO [b]	0.85	5.331	2.67E+00	
NOx[b]	3.20	20.070	1.004E+01	2.29E+00
SO_2 [b] (total SOx presumed SO2)	0.0505	0.317	0.158	3.62E-02
VOC [b] (total TOC--> VOCs)	0.09	0.564	0.282	
Lead				
HCl [e]				
Dioxins[e]				
2,3,7,8-TCDD				
Total TCDD				
1,2,3,7,8-PeCDD				
Total PeCDD				
1,2,3,4,7,8-HxCDD[c]				
1,2,3,6,7,8-HxCDD				
1,2,3,7,8,9-HxCDD[c]				
Total HxCDD				
1,2,3,4,6,7,8-Hp-CDD[c]				
Total $HpCDD_c$				
Octa CDD[c]				
Total PCDD[c]				
Furans[e]				
2,3,7,8-TCDF				
Total TCDF[c]				
1,2,3,7,8-PeCDF				
2,3,4,7,8-PeCDF				
Total PeCDF[c]				
1,2,3,4,7,8-HxCDF				
1,2,3,6,7,8-HxCDF				
2,3,4,6,7,8-HxCDF				
1,2,3,7,8,9-HxCDF				
Total HxCDF[c]				
1,2,3,4,6,7,8-HpCDF				
1,2,3,4,7,8,9-HpCDF				
Total HpCDF[c]				
Octa CDF[c]				
Total PCDF[c]				
Total PCDD/PCDF[c]				
Non-PAH HAPs				
Acetaldehyde[c]	2.52E-05	1.58E-04	7.90E-05	**1.80E-05**
Acrolein[c]	7.88E-06	4.94E-05	2.47E-05	2.06E-05
Benzene[c,e]	7.76E-04	4.87E-03	2.43E-03	**5.56E-04**
1,3-Butadiene[c,e]				
Ethylbenzene[e]				
Formaldehyde[c,e]	7.89E-05	4.95E-04	2.47E-04	**5.65E-05**
Hexane[e]				
Isooctane				
Methyl Ethyl Ketone[e]				
Pentane[e]				
Propionaldehyde[e]				
Quinone[e]				
Methyl chloroform[e]				
Toluene[c,e]	2.81E-04	1.76E-03	8.81E-04	7.34E-04
Xylene[c,e]	1.93E-04	1.21E-03	6.05E-04	5.04E-04
POM (7-PAH Group)		2.82E-05		**3.22E-06**

Pollutant	Emission Factor[a] (lb/MMBtu)	Emissions (lb/hr)	Emissions (T/yr)	TAPs Emissions (lb/hr) **Annual** or 24-hr
PAH HAPs				
2-Methylnaphthalene				
3-Methylchloranthrene[e]				
Acenaphthene[c1]	4.68E-06	2.94E-05	1.47E-05	**3.35E-06**
Acenaphthylene[c1]	9.23E-06	5.79E-05	2.89E-05	**6.61E-06**
Anthracene[c1]	1.23E-06	7.71E-06	3.86E-06	**8.81E-07**
Benzo(a)anthracene[c1]	6.22E-07	3.90E-06	1.95E-06	**4.45E-07**
Benzo(a)pyrene[c1,e]	2.57E-07	1.61E-06	8.06E-07	**1.84E-07**
Benzo(b)fluoranthene[c1]	1.11E-06	6.96E-06	3.48E-06	**7.95E-07**
Benzo(e)pyrene				
Benzo(g,h,I)perylene[c1]	5.56E-07	3.49E-06	1.74E-06	**3.98E-07**
Benzo(k)fluoranthene[c1]	2.18E-07	1.37E-06	6.84E-07	**1.56E-07**
Chrysene[c1]	1.53E-06	9.60E-06	4.80E-06	**1.10E-06**
Dibenzo(a,h)anthracene[c1]	3.46E-07	2.17E-06	1.09E-06	**2.48E-07**
Dichlorobenzene				
Fluoranthene[c1]	4.03E-06	2.53E-05	1.26E-05	**2.89E-06**
Fluorene[c1]	1.28E-05	8.03E-05	4.01E-05	**9.16E-06**
Indeno(1,2,3-cd)pyrene[c1]	4.14E-07	2.60E-06	1.30E-06	**2.96E-07**
Naphthalene[c1,e]	1.30E-04	8.15E-04	4.08E-04	**9.31E-05**
Perylene				
Phenanthrene[c1]	4.08E-05	2.56E-04	1.28E-04	**2.92E-05**
Pyrene[c1]	3.71E-06	2.33E-05	1.16E-05	**2.66E-06**
Non-HAP Organic Compounds				
Acetone[e]				
Benzaldehyde				
Butane				
Butyraldehyde				
Crotonaldehyde[e]				
Ethylene				
Heptane				
Hexanal				
Isovaleraldehyde				
2-Methyl-1-pentene				
2-Methyl-2-butene				
3-Methylpentane				
1-Pentene				
n-Pentane				
Valeraldehyde				
Metals				
Antimony[e]				
Arsenic[e]				
Barium[e]				
Beryllium[e]				
Cadmium[e]				
Chromium[e]				
Cobalt[e]				
Copper[e]				
Hexavalent Chromium[e]				
Manganese[e]				
Mercury[e]				
Molybdenum[e]				
Nickel[e]				
Phosphorus[e]				
Silver[e]				
Selenium[e]				
Thallium[e]				
Vanadium[e]				
Zinc[e]				

a) Emission factors are from AP-42
b) AP-42, Table 3.4-1, Gaseous Emission Factors for Large Stationary Diesel and All Stationary Dual Fuel Engines, 10/96
c) AP-42, Table 3.4-3, Speciated Organic Compound Emission Factors for Large Uncontrolled Stationary Diesel Engines, **Emission Factor Rating E**, 10/96
c1) AP-42, Table 3.4-4, PAH Emission Factors for Large Uncontrolled Stationary Diesel Engines, **Emission Factor Rating E**, 10/96
d) AP-42, Table 3.4-2, Particulate and Particle-Sizing Emission Factors for Large Uncontrolled Stationary Diesel Engines, **Emission Factor Rating E**, 10/96
e) IDAPA Toxic Air Pollutant

TAPs lb/hr rates are 24-hr averages except for those in bold text. Lb/hr rates for bold TAPs (carcinogens) are annual averages.

Facility: **Avail Valley Construction-ID, LLC - Driggs**
7/21/2021 13:32 **Permit/Facility ID:** **P-2021.0008** **081-00009**

Max Hourly Production	250	T/hr	96%	T/hr is Aggregate & RAP =	**240 T/hr**
Max Daily Production	2,000	Tons/day	96%	T/day is Aggregate & RAP =	**1,920 T/day**
Max Annual Production	45,000	Tons/yr	96%	T/yr is Aggregate & RAP =	**43,200 T/yr**

Fine PM emitted from RAP use is negligible (see assumptions on page 1 of this spreadsheet). Worst case emissions are for 0% RAP

Aggregate Front-end Loader Drop Points, AP-42 13.2.4 (11/06)

$E = k\ (0.0032) \times (U/5)^{1.3} / (M/2)^{1.4}$ = 3.31E-03 for PM 1.56E-03 lb/ton for PM10 2.37E-04 lb/ton for PM2.5

k = particle size multiplier	0.74 for PM	0.35 for PM10	0.053 for PM2.5
U = mean wind speed =	**10 mph**	Wind speed range for source conditions for Equation 1: 1.3 to 15 mph. Select 10 mph as base case wind speed.	
M = moisture content =	**3 %**		

Moisture Content: STAPPA-ALAPCO-EPA, Emission Inventory Improvement Program, Volume II, Chapter 3, Preferred and Alternative Methods for Estimating Air Emissions from Hot Mix Asphalt Plants, Final Report, July 1996: Aggregate moisture content into dryer typically 3 to 7 %
BAAQMD, Hot Mixing Asphalt Facilities, Engineering Evaluation Template, www.baaqmd.gov/pmt/handbook/s11c02ev.htm: Bulk aggregate moisture content typically stabilizes between 3 and 5% by weight.

Windspeed Variation Factors for AERMOD modeling:				PM10		PM2.5	
Wind Category	Upper windspeed (m/sec)	Avg windspeed (m/sec)	Avg windspeed (mph)	E @ avg mph	F = Eavg mph/ E@10mph	E @ avg mph	F = Eavg mph/ E@10mph
Cat 1:	1.54	0.77	1.72	1.59E-04	0.1016	2.41E-05	0.1016
Cat 2:	3.09	2.32	5.18	6.65E-04	0.4251	1.01E-04	0.4251
Cat 3:	5.14	4.12	9.20	1.40E-03	0.8979	2.13E-04	0.8979
Cat 4:	8.23	6.69	14.95	2.64E-03	1.687	3.99E-04	1.687
Cat 5:	10.80	9.52	21.28	4.17E-03	2.670	6.32E-04	2.670
Cat 6:	14.00	12.40	27.74	5.89E-03	3.767	8.92E-04	3.767

Aggregate Front End Loader Drop Points Drop to storage pile and drop to bins: **240 T/hr** **2** Transfer Points

Pollutant	Calculated Emission Factor from AP-42 13.2.4 (lb/ton)	Emissions Per Transfer Point				Total Emissions			
		Emissions (lb/hr) 1-hr Average	Emissions (lb/hr) 24-hr Average	Emissions (T/yr)	Emissions (lb/hr) Annual Average	Emissions (lb/hr) 1-hr Average	Emissions (lb/hr) 24-hr Average	Emissions (T/yr)	Emissions (lb/hr) Annual Average
PM (total)	3.31E-03	0.79	0.26	0.07	0.02	1.59	0.53	0.14	0.03
PM-10 (total)	1.56E-03	0.38	0.13	0.03	0.01	0.75	0.25	0.07	0.02
PM-2.5	2.37E-04	0.06	0.02	0.01	0.00	0.11	0.04	0.01	0.00

Conveyor and Scalping Screen Emission Points

Moisture/Control %:
AP-42 Table 11.19.2-2, Note b. Moisture content of uncontrolled sources ranged from 0.21 to 1.3%
AP-42 Table 11.19.2-2, Note b. Moisture content of controlled (water spray) sources ranged from 0.55 to 2.88% --> ~91.3% control for screening, ~95% control for conveyor transfer
Bulk aggregate for HMA plants typically stabilizes between 3 and 5% by weight--> Apply additional **90%** control to lb/hr, etc. for the higher moisture.

Aggregate Weigh Conveyor

Transfer from bins to conveyor and from conveyor to scalping screen: **240 T/hr** **2** Transfer Points

Pollutant	Calculated Emission Factor from AP-42 13.2.4 (lb/ton)	Emissions Per Transfer Point				Total Emissions			
		Emissions (lb/hr) 1-hr Average	Emissions (lb/hr) 24-hr Average	Emissions (T/yr)	Emissions (lb/hr) Annual Average	Emissions (lb/hr) 1-hr Average	Emissions (lb/hr) 24-hr Average	Emissions (T/yr)	Emissions (lb/hr) Annual Average
PM (total)	3.31E-03	7.93E-02	2.64E-02	7.14E-03	1.63E-03	1.59E-01	5.29E-02	1.43E-02	3.26E-03
PM-10 (total)	1.56E-03	3.75E-02	1.25E-02	3.38E-03	7.71E-04	7.50E-02	2.50E-02	6.75E-03	1.54E-03
PM-2.5	2.37E-04	5.68E-03	1.89E-03	5.11E-04	1.17E-04	1.14E-02	3.79E-03	1.02E-03	2.33E-04

Aggregate Scalping Screen, AP-42 11.19 (8/04) Aggregate flow across scalping screen onto conveyor: **240 T/hr**

Pollutant	Emission Factor Table 11.19.2-2 SCREENING UNCONTROLLED (lb/ton)	Emissions (lb/hr) 1-hr Average	Emissions (lb/hr) 24-hr Average	Emissions (T/yr)	Emissions (lb/hr) Annual Average
PM (total)	0.025	0.600	2.00E-01	5.40E-02	1.23E-02
PM-10 (total)	0.0087	0.209	6.96E-02	1.88E-02	4.29E-03
PM-2.5	1.30E-04	0.003	1.04E-03	2.81E-04	6.41E-05

Aggregate Conveyor to Drum (~top end of the drum) Aggregate transfer from conveyor to drum dryer (1 transfer point): **240 T/hr**

Pollutant	Calculated Emission Factor from AP-42 13.2.4 (lb/ton)	Emissions Per Transfer Point			
		Emissions (lb/hr) 1-hr Average	Emissions (lb/hr) 24-hr Average	Emissions (T/yr)	Emissions (lb/hr) Annual Average
PM (total)	3.31E-03	7.93E-02	2.64E-02	7.14E-03	1.63E-03
PM-10 (total)	1.56E-03	3.75E-02	1.25E-02	3.38E-03	7.71E-04
PM-2.5	2.37E-04	5.68E-03	1.89E-03	5.11E-04	1.17E-04

Facility: **Avail Valley Construction-ID, LLC - Driggs**
7/21/2021 13:32 **Permit/Facility ID: P-2021.0008 081-00009**

Asphalt Tank Heater - #2 Oil Fired, Estimated GHG Emissions Using AP-42 Sections 11.1 (HMA Plants) & 1.3 (Fuel Oil Combustion)

Hot Mix Plant Fuel Type Toggle (#2) =	0
Hot Mix Plant Fuel Type Toggle (Used Oil) =	0
Hot Mix Plant Fuel Type Toggle (NG) =	0
Hot Mix Plant Fuel Type Toggle (LPG) =	1
Tank Heater Fuel Type Toggle (NG) =	1
Tank Heater Fuel Type Toggle (#2) =	0

Note: CO2e emissions from the silo, loadout operation, and the tanks were assumed to be negligible (less than 1 ton per year).

Green House Gas Emissions When Combusting #2 Fuel Oil

Asphalt Plant Emissions	Emission Factor (EF)	EF Units	EF Source	Emissions (T/yr)	Global Warming Potential	CO_2e (T/yr)
CO_2	33.00	lb/T	AP-42 Table 11.1-7	0.00	1.00	0.00
Methane	0.012	lb/T	AP-42 Table 11.1-8	0.00	21.00	0.00
N_2O	0.26	lb/10^3 gal	AP-42 Table 1.3-8	0.000000	310.00	0.00

Tank Heater	Emission Factor (EF)	EF Units	EF Source	T/yr	Global Warming Potential	CO_2e T/yr
CO_2	Assumes all carbon is converted to CO_2.			0.00	1	0.00
Methane	0.216	lb/10^3 gal	AP-42 Table 1.3-3	0.00E+00	21	0.00
N_2O	0.26	lb/10^3 gal	AP-42 Table 1.3-8	0.00E+00	310	0.00

Green House Gas Emissions When Combusting Used Oil

Asphalt Plant Emissions	Emission Factor (EF)	EF Units	EF Source	Emissions (T/yr)	Global Warming Potential	CO_2e (T/yr)
CO_2	33.00	lb/T	AP-42 Table 11.1-7	0.00	1.00	0.00
Methane	0.012	lb/T	AP-42 Table 11.1-8	0.00	21.00	0.00
N_2O	0.53	lb/10^3 gal	AP-42 Table 1.3-8	0.000000	310.00	0.00

Green House Gas Emissions When Combusting Natural Gas

Asphalt Plant Emissions	Emission Factor (EF)	EF Units	EF Source	Emissions (T/yr)	Global Warming Potential	CO_2e (T/yr)
CO_2	33.00	lb/T	AP-42 Table 11.1-7	0.00	1.00	0.00
Methane	0.012	lb/T	AP-42 Table 11.1-8	0.00	21.00	0.00
N_2O	0.26	lb/10^3 gal	AP-42 Table 1.3-8	0.000000	310.00	0.00

Tank Heater	Emission Factor (EF)	EF Units	EF Source	T/yr	Global Warming Potential	CO_2e T/yr
CO_2	0.12	lb/scf	AP-42 Table 1.4-2	694.12	1	694.12
Methane	0.0000023	lb/scf	AP-42 Table 1.4-2	1.33E-02	21	0.28
N_2O	0.0000022	lb/scf	AP-42 Table 1.4-2	1.27E-02	310	3.94

Green House Gas Emissions When Combusting LPG

Asphalt Plant Emissions	Emission Factor (EF)	EF Units	EF Source	Emissions (T/yr)	Global Warming Potential	CO_2e (T/yr)
CO_2	33.00	lb/T	AP-42 Table 11.1-7	742.50	1.00	742.50
Methane	0.012	lb/T	AP-42 Table 11.1-8	0.27	21.00	5.67
N_2O	0.26	lb/10^3 gal	AP-42 Table 1.3-8	0.018101	310.00	5.61

Green House Gas Emissions When Combusting Diesel Fuel

IC Engine 1 < 600 bhp	Emission Factor (EF)	EF Units	EF Source	Emissions (T/yr)	Global Warming Potential	CO_2e (T/yr)
CO_2	1.16	lb/bhp-hr	AP-42 Table 3.4-1	46.40	1.00	46.40

IC Engine 2 > 600 bhp	Emission Factor (EF)	EF Units	EF Source	Emissions (T/yr)	Global Warming Potential	CO_2e (T/yr)
CO_2	1.16	lb/bhp-hr	AP-42 Table 3.4-1	519.68	1.00	519.68

Total Green House Gas Emissions

Total Emissions	CO_2e (T/yr)
CO_2	2,002.70
Methane	5.95
N_2O	9.56
Grand Total	**2,018.20**

Facility: Avail Valley Construction-ID, LLC - Driggs

7/21/2021 13:32 **Permit/Facility ID:** P-2021.0008 081-00009

EMISSION INVENTORY

POUNDS PER HOUR

Max Controlled Emissions of Any Pollutant from Drum Mix HMA Plant Fabric Filter, Tank Heater, Generator, Silo Fill/Load-out

A. Drum Mix Plant: **250** Tons/hour 180 Hours/year **45,000** Tons/year **2,000** Tons/day

Maximum emission for each pollutant from any fuel-burning options selected on "Facility Data" worksheet. Fuels Selected = LPG/Propane

B. Tank Heater: **2.9500** MMBtu/hr **4,000** Hours/year **12** hrs/day

Maximum emission for each pollutant for heater burning any fuel selected on "Facility Data" worksheet. Fuels Selected = #2 Fuel Oil

C1. IC Engine 1: **2.04** gal/hour **2000** Hours/year IC Engine < 600hp #2 Fuel Oil **10** hrs/day

C2. IC Engine 2: **45.77** gal/hour **1000** Hours/year IC Engine > 600hp #2 Fuel Oil **10** hrs/day

Pollutant	**A Drum Mix** Max Emission Rate for Pollutant (lb/hr)	**B Asphalt Tank Heater** Max Emission Rate for Pollutant (lb/hr)	**C IC Engine 1 + IC Engine 2** Max Emission Rate for Pollutant (lb/hr)	**D Load-out & Silo Filling** Emission Rate for Pollutant (lb/hr)	**E TOTAL** of Max Emission Rates from A, B, C & D (lb/hr)
PM (total)	11.25	7.10E-02	7.14E-01	2.77E-01	12.31
PM-10 (total)	6.80	4.95E-02	9.02E-01	2.77E-01	8.03
PM-2.5	6.22	3.32E-02	3.68E-01	2.77E-01	6.89
CO	32.50	1.08E-01	5.60E+00	6.32E-01	38.84
NOx	9.75	5.17E-01	2.13E+01		31.57
SO_2	0.85	1.53E-01	3.25E-01		1.33
VOC	8.00	1.20E-02	6.65E-01	1.01E+00	9.69
Lead	1.55E-04	3.25E-05	0.00E+00		1.88E-04
HCl [e]	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Dioxins[e]					
2,3,7,8-TCDD	0.00E+00				**0.00E+00**
Total TCDD	0.00E+00				**0.00E+00**
1,2,3,7,8-PeCDD	0.00E+00				**0.00E+00**
Total PeCDD	0.00E+00				**0.00E+00**
1,2,3,4,7,8-HxCDD	0.00E+00	6.78E-12			**6.78E-12**
1,2,3,6,7,8-HxCDD	0.00E+00				**0.00E+00**
1,2,3,7,8,9-HxCDD	0.00E+00	7.47E-12			**7.47E-12**
Total HxCDD	0.00E+00				**0.00E+00**
1,2,3,4,6,7,8-Hp-CDD	0.00E+00	1.47E-10			**1.47E-10**
Total HpCDD	0.00E+00	1.97E-10			**1.97E-10**
Octa CDD	0.00E+00	1.57E-09			**1.57E-09**
Total PCDD[h]	0.00E+00	1.97E-09			**1.97E-09**
Furans[e]					
2,3,7,8-TCDF	0.00E+00				**0.00E+00**
Total TCDF	0.00E+00	3.24E-11			**3.24E-11**
1,2,3,7,8-PeCDF	0.00E+00				**0.00E+00**
2,3,4,7,8-PeCDF	0.00E+00				**0.00E+00**
Total PeCDF	0.00E+00	4.72E-12			**4.72E-12**
1,2,3,4,7,8-HxCDF	0.00E+00				**0.00E+00**
1,2,3,6,7,8-HxCDF	0.00E+00				**0.00E+00**
2,3,4,6,7,8-HxCDF	0.00E+00				**0.00E+00**
1,2,3,7,8,9-HxCDF	0.00E+00				**0.00E+00**
Total HxCDF	0.00E+00	1.97E-11			**1.97E-11**
1,2,3,4,6,7,8-HpCDF	0.00E+00				**0.00E+00**
1,2,3,4,7,8,9-HpCDF	0.00E+00				**0.00E+00**
Total HpCDF	0.00E+00	9.54E-11			**9.54E-11**
Octa CDF	0.00E+00	1.18E-10			**1.18E-10**
Total PCDF[h]	0.00E+00	3.05E-10			**3.05E-10**
Total PCDD/PCDF[h]	0.00E+00	2.26E-09	0.00E+00		**2.26E-09**
Non-PAH HAPs					
Acetaldehyde[e]	0.00E+00		6.71E-05		**6.71E-05**
Acrolein[e]	0.00E+00		3.14E-05		3.14E-05
Benzene[e]	2.00E-03	0.00E+00	6.15E-04	3.11E-05	**2.65E-03**
1,3-Butadiene[e]			2.50E-06		**2.50E-06**
Ethylbenzene[e]	2.00E-02			1.36E-03	2.14E-02
Formaldehyde[e]	1.59E-02	3.44E-05	1.32E-04	4.51E-04	**1.65E-02**
Hexane[e]	7.67E-02	0.00E+00		1.54E-03	7.82E-02
Isooctane	3.33E-03			9.39E-06	3.34E-03
Methyl Ethyl Ketone[e]	0.00E+00			5.66E-04	5.66E-04
Pentane[e]		0.00E+00			0.00E+00
Propionaldehyde[e]	0.00E+00				0.00E+00
Quinone[e]	0.00E+00				0.00E+00
Methyl chloroform[e]	4.00E-03				4.00E-03
Toluene[e]	1.25E-02	0.00E+00	7.82E-04	1.36E-03	1.46E-02
Xylene[e]	1.67E-02		5.38E-04	6.80E-03	2.40E-02
POM (7-PAH Group)[e]	2.81E-06	9.83E-07	3.44E-06	5.83E-06	**1.31E-05**
TOTAL PAH HAPs	9.63E-04	2.26E-04	1.62E-04	2.53E-04	**1.60E-03**

Pollutant	**A Drum Mix** Max Emission Rate for Pollutant (lb/hr)	**B Asphalt Tank Heater** Max Emission Rate for Pollutant (lb/hr)	**C IC Engine IC1 + IC2** Max Emission Rate for Pollutant (lb/hr)	**D Load-out & Silo Filling** Emission Rate for Pollutant (lb/hr)	**E TOTAL** of Max Emission Rates from A, B, C & D (lb/hr)
PAH HAPs					
2-Methylnaphthalene	3.80E-04	0.00E+00		1.10E-04	**4.91E-04**
3-Methylchloranthrene[e]	0.00E+00	0.00E+00			**0.00E+00**
Acenaphthene	7.19E-06	5.21E-06	3.44E-06	1.07E-05	**2.65E-05**
Acenaphthylene	4.42E-05	1.97E-06	6.93E-06	6.73E-07	**5.37E-05**
Anthracene	1.13E-06	1.77E-06	1.00E-06	2.92E-06	**6.82E-06**
Benzo(a)anthracene[e]	1.08E-06	0.00E+00	5.53E-07	1.06E-06	**2.69E-06**
Benzo(a)pyrene[e]	5.03E-08	0.00E+00	1.96E-07	4.03E-08	**2.87E-07**
Benzo(b)fluoranthene[e]	5.14E-07	9.83E-07	8.01E-07	1.33E-07	**2.43E-06**
Benzo(e)pyrene	5.65E-07	0.00E+00		2.61E-07	**8.26E-07**
Benzo(g,h,I)perylene	2.05E-07	0.00E+00	4.29E-07	3.33E-08	**6.68E-07**
Benzo(k)fluoranthene[e]	2.11E-07	0.00E+00	1.66E-07	3.85E-08	**4.15E-07**
Chrysene[e]	9.25E-07	0.00E+00	1.12E-06	4.54E-06	**6.59E-06**
Dibenzo(a,h)anthracene[e]	0.00E+00	0.00E+00	2.85E-07	6.48E-09	**2.91E-07**
Dichlorobenzene	0.00E+00	0.00E+00			**0.00E+00**
Fluoranthene	3.13E-06	4.33E-07	3.37E-06	2.83E-06	**9.77E-06**
Fluorene	1.95E-05	3.15E-07	1.10E-05	2.67E-05	**5.75E-05**
Indeno(1,2,3-cd)pyrene[e]	3.60E-08	0.00E+00	3.20E-07	8.23E-09	**3.65E-07**
Naphthalene[e]	4.62E-04	1.67E-04	9.85E-05	4.56E-05	**7.74E-04**
Perylene	4.52E-08	0.00E+00		7.77E-07	**8.22E-07**
Phenanthrene	3.90E-05	4.82E-05	3.11E-05	3.77E-05	**1.56E-04**
Pyrene	2.77E-06	3.15E-07	2.96E-06	8.37E-06	**1.44E-05**
Non-HAP Organic Compounds					
Acetone[e]	0.00E+00	0.00E+00		7.21E-04	7.21E-04
Benzaldehyde	0.00E+00	0.00E+00			0.00E+00
Butane	5.58E-02	0.00E+00			5.58E-02
Butyraldehyde	0.00E+00	0.00E+00			0.00E+00
Crotonaldehyde[e]	0.00E+00	0.00E+00			0.00E+00
Ethylene	5.83E-01	0.00E+00		1.36E-02	5.97E-01
Heptane	7.83E-01	0.00E+00			7.83E-01
Hexanal	0.00E+00	0.00E+00			0.00E+00
Isovaleraldehyde	0.00E+00	0.00E+00			0.00E+00
2-Methyl-1-pentene	3.33E-01	0.00E+00			3.33E-01
2-Methyl-2-butene	4.83E-02	0.00E+00			4.83E-02
3-Methylpentane	1.58E-02	0.00E+00			1.58E-02
1-Pentene	1.83E-01	0.00E+00			1.83E-01
n-Pentane	1.75E-02	0.00E+00			1.75E-02
Valeraldehyde[e]	0.00E+00	0.00E+00			0.00E+00
Metals					
Antimony[e]	4.50E-04	5.65E-05			5.07E-04
Arsenic[e]	8.63E-05	1.30E-05			**9.93E-05**
Barium[e]	1.45E-02	2.77E-05			1.45E-02
Beryllium[e]	0.00E+00	2.73E-07			**2.73E-07**
Cadmium[e]	6.32E-05	3.91E-06			**6.71E-05**
Chromium[e]	1.38E-02	9.10E-06			1.38E-02
Cobalt[e]	6.50E-05	6.48E-05			1.30E-04
Copper[e]	7.75E-03	1.89E-05			7.77E-03
Hexavalent Chromium[e]	6.93E-05	2.44E-06			**7.18E-05**
Manganese[e]	1.93E-02	3.23E-05			1.93E-02
Mercury[e]	6.00E-04	1.22E-06			6.01E-04
Molybdenum[e]	0.00E+00	8.47E-06			8.47E-06
Nickel[e]	9.71E-03	8.31E-04			**1.05E-02**
Phosphorus[e]	7.00E-02	1.02E-04			7.01E-02
Silver[e]	1.20E-03	0.00E+00			1.20E-03
Selenium[e]	8.75E-04	7.35E-06			8.82E-04
Thallium[e]	1.03E-05	0.00E+00			1.03E-05
Vanadium[e]	0.00E+00	3.42E-04			3.42E-04
Zinc[e]	1.53E-01	3.13E-04			1.53E-01

e) IDAPA Toxic Air Pollutant

Criteria Pollutant lb/hr emissions are maximum 1-hr averages

TAPs lb/hr rates are 24-hr averages except for those in bold text. Lb/hr rates for bold TAPs (carcinogens) are annual averages.

Pollutants shown in blue text are emitted only when burning Used Oil, but not when burning #2 Fuel Oil or Natural Gas

Max Controlled Emissions of Any Pollutant from Drum Mix HMA Plant Fabric Filter, Tank Heater, Generator, Silo Fill/Load-out

A. Drum Mix Plant: **250** Tons/hour 180 Hours/year **45,000** Tons/year HMA throughput **2,000** hrs/day
Maximum emission for each pollutant from any fuel-burning option selected. Fuels Selected = LPG/Propane
B. Tank Heater: **2.9500** MMBtu/hr **4,000** Hours/year **12** hrs/day
Maximum emission for each pollutant from any fuel-burning option selected. Fuels Selected = #2 Fuel Oil
C1. IC Engine 1: **2.04** gal/hour **2000** Hours/year #2 Fuel Oil Generator < 600hp **10** hrs/day
C2. IC Engine 2: **45.77** gal/hour **1000** Hours/year #2 Fuel Oil Generator > 600hp **10** hrs/day

Pollutant	**A** **Drum Mix** Max Emission Rate for Pollutant (lb/hr)	**B** **Asphalt Tank Heater** Max Emission Rate for Pollutant (lb/hr)	**C** **IC Engine** Max Emission Rate for Pollutant (lb/hr)	**D** **Load-out & Silo Filling** Emission Rate for Pollutant (lb/hr)	**E** **TOTAL** of Max Emission Rates from A, B, C & D (lb/hr)
non-PAH HAPs[g]					
Bromomethane[e]				8.30E-05	8.30E-05
2-Butanone (see Methyl Ethyl Ketone)					
Carbon disulfide[e]				2.08E-04	2.08E-04
Chloroethane (Ethyl chloride[e])				4.14E-05	4.14E-05
Chloromethane (Methyl chloride[e])				2.86E-04	2.86E-04
Cumene				3.81E-04	3.81E-04
n-Hexane					
Methylene chloride (Dichloromethane[e])				2.74E-06	2.74E-06
MTBE					
Styrene[e]				8.01E-05	8.01E-05
Tetrachloroethene (Tetrachloroethylene[e])				2.67E-05	2.67E-05
1,1,1-Trichloroethane (Methyl chloroform[e])					
Trichloroethene (Trichloroethylene[e])					
Trichlorofluoromethane				4.51E-06	4.51E-06
m-/p-Xylene[e]				3.45E-03	3.45E-03
o-Xylene[e]				3.35E-03	3.35E-03
Phenol[e,f]				3.35E-04	3.35E-04
Non-HAP Organic Compounds					
Methane				2.87E-01	2.87E-01

e) IDAPA Toxic Air Pollutant

TAPs lb/hr rates are 24-hr averages except for those in bold text. Lb/hr rates for bold TAPs (carcinogens) are annual averages.

Facility: **Avail Valley Construction-ID, LLC - Driggs**
7/21/2021 13:32 **Permit/Facility ID:** **P-2021.0008** **081-00009**

EMISSION INVENTORY

TONS PER YEAR

Max Controlled Emissions of Any Pollutant from Drum Mix HMA Plant Fabric Filter, Tank Heater, Generator, Silo Fill/Load-out

A. Drum Mix Plant: **250** Tons/hour 180 Hours/year **45,000** Tons/year HMA throughput **2,000** hrs/day
Maximum emission for each pollutant from any fuel-burning options selected on "Facility Data" worksheet. Fuels Selected = LPG/Propane
B. Tank Heater: **2.9500** MMBtu/hr **4,000** Hours/year **12** hrs/day
Maximum emission for each pollutant for heater burning any fuel selected on "Facility Data" worksheet. Fuels Selected = #2 Fuel Oil
C1. IC Engine 1: **2.04** gal/hour **2000** Hours/year IC Engine <600hp #2 Fuel Oil **10** hrs/day
C2. IC Engine 2: **45.77** gal/hour **1000** Hours/year IC Engine > 600hp #2 Fuel Oil **10** hrs/day

Pollutant	**A Drum Mix** Max Emission Rate for Pollutant (T/yr)	**B Asphalt Tank Heater** Max Emission Rate for Pollutant (T/yr)	**C IC Engine IC1 + IC2** Max Emission Rate for Pollutant (T/yr)	**D Load-out & Silo Filling** Emission Rate for Pollutant (T/yr)	**E POINT SOURCE TOTAL** of Max Emission Rates from A, B, & C (T/yr) Exclude Fugitives (D)
PM (total)	1.01	1.42E-01	4.00E-01	2.49E-02	1.55
PM-10 (total)	0.61	9.90E-02	4.94E-01	2.49E-02	1.21
PM-2.5	0.56	6.63E-02	1.94E-01	2.49E-02	0.82
CO	2.93	2.15E-01	2.93E+00	5.69E-02	6.07
NOx	0.88	1.03E+00	1.13E+01		13.18
SO_2	0.08	3.06E-01	1.59E-01		0.54
VOC	0.72	2.39E-02	3.83E-01	9.07E-02	1.13
Lead	1.40E-05	6.50E-05	0.00E+00		7.90E-05
HCl [e]	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Dioxins[e]					
2,3,7,8-TCDD	0.00E+00				0.00E+00
Total TCDD	0.00E+00				0.00E+00
1,2,3,7,8-PeCDD	0.00E+00				0.00E+00
Total PeCDD	0.00E+00				0.00E+00
1,2,3,4,7,8-HxCDD	0.00E+00	2.97E-11			2.97E-11
1,2,3,6,7,8-HxCDD	0.00E+00				0.00E+00
1,2,3,7,8,9-HxCDD	0.00E+00	3.27E-11			3.27E-11
Total HxCDD	0.00E+00				0.00E+00
1,2,3,4,6,7,8-Hp-CDD	0.00E+00	6.46E-10			6.46E-10
Total HpCDD	0.00E+00	8.61E-10			8.61E-10
Octa CDD	0.00E+00	6.89E-09			6.89E-09
Total PCDD[h]	0.00E+00	8.61E-09			8.61E-09
Furans[e]					
2,3,7,8-TCDF	0.00E+00				0.00E+00
Total TCDF	0.00E+00	1.42E-10			1.42E-10
1,2,3,7,8-PeCDF	0.00E+00				0.00E+00
2,3,4,7,8-PeCDF	0.00E+00				0.00E+00
Total PeCDF	0.00E+00	2.07E-11			2.07E-11
1,2,3,4,7,8-HxCDF	0.00E+00				0.00E+00
1,2,3,6,7,8-HxCDF	0.00E+00				0.00E+00
2,3,4,6,7,8-HxCDF	0.00E+00				0.00E+00
1,2,3,7,8,9-HxCDF	0.00E+00				0.00E+00
Total HxCDF	0.00E+00	8.61E-11			8.61E-11
1,2,3,4,6,7,8-HpCDF	0.00E+00				0.00E+00
1,2,3,4,7,8,9-HpCDF	0.00E+00				0.00E+00
Total HpCDF	0.00E+00	4.18E-10			4.18E-10
Octa CDF	0.00E+00	5.17E-10			5.17E-10
Total PCDF[h]	0.00E+00	1.33E-09			1.33E-09
Total PCDD/PCDF[h]	0.00E+00	9.90E-09			9.90E-09
Non-PAH HAPs					
Acetaldehyde[e]	0.00E+00		2.94E-04		2.94E-04
Acrolein[e]	0.00E+00		5.06E-05		5.06E-05
Benzene[e]	8.78E-03	0.00E+00	2.69E-03	1.36E-04	1.15E-02
1,3-Butadiene[e]	0.00E+00		1.09E-05		1.09E-05
Ethylbenzene[e]	5.40E-03			3.66E-04	5.40E-03
Formaldehyde[e]	6.98E-02	1.51E-04	5.78E-04	1.97E-03	7.05E-02
Hexane[e]	2.07E-02	0.00E+00		4.15E-04	2.07E-02
Isooctane	9.00E-04			2.53E-06	9.00E-04
Methyl Ethyl Ketone[e]	0.00E+00			1.53E-04	0.00E+00
Pentane[e]	0.00E+00	0.00E+00			0.00E+00
Propionaldehyde[e]	0.00E+00				0.00E+00
Quinone[e]	0.00E+00				0.00E+00
Methyl chloroform[e]	1.08E-03				1.08E-03
Toluene[e]	3.38E-03	0.00E+00	9.96E-04	3.67E-04	4.37E-03
Xylene[e]	4.50E-03	0.00E+00	6.85E-04	1.84E-03	5.19E-03
TOTAL Federal HAPs (T/yr)=					**2.53E-01**

Pollutant	**A Drum Mix** Max Emission Rate for Pollutant (T/yr)	**B Asphalt Tank Heater** Max Emission Rate for Pollutant (T/yr)	**C IC Engine IC1 + IC2** Max Emission Rate for Pollutant (T/yr)	**D Load-out & Silo Filling** Emission Rate for Pollutant (T/yr)	**E POINT SOURCE TOTAL** of Max Emission Rates from A, B, & C (T/yr) Exclude Fugitives (D)
PAH HAPs					
2-Methylnaphthalene	1.67E-03	0.00E+00		4.84E-04	1.67E-03
3-Methylchloranthrene[e]	0.00E+00	0.00E+00			0.00E+00
Acenaphthene	3.15E-05	2.28E-05	1.51E-05	4.68E-05	6.94E-05
Acenaphthylene	1.94E-04	8.61E-06	3.04E-05	2.95E-06	2.32E-04
Anthracene	4.95E-06	7.75E-06	4.38E-06	1.28E-05	1.71E-05
Benzo(a)anthracene[e]	4.73E-06	0.00E+00	2.42E-06	4.66E-06	7.15E-06
Benzo(a)pyrene[e]	2.21E-07	0.00E+00	8.59E-07	1.76E-07	1.08E-06
Benzo(b)fluoranthene[e]	2.25E-06	4.31E-06	3.51E-06	5.83E-07	1.01E-05
Benzo(e)pyrene	2.48E-06	0.00E+00		1.14E-06	2.48E-06
Benzo(g,h,I)perylene	9.00E-07	0.00E+00	1.88E-06	1.46E-07	2.78E-06
Benzo(k)fluoranthene[e]	9.23E-07	0.00E+00	7.27E-07	1.69E-07	1.65E-06
Chrysene[e]	4.05E-06	0.00E+00	4.90E-06	1.99E-05	8.95E-06
Dibenzo(a,h)anthracene[e]	0.00E+00	0.00E+00	1.25E-06	2.84E-08	1.25E-06
Dichlorobenzene	0.00E+00	0.00E+00			0.00E+00
Fluoranthene	1.37E-05	1.89E-06	1.48E-05	1.24E-05	3.04E-05
Fluorene	8.55E-05	1.38E-06	4.83E-05	1.17E-04	1.35E-04
Indeno(1,2,3-cd)pyrene[e]	1.58E-07	0.00E+00	1.40E-06	3.61E-08	1.56E-06
Naphthalene[e]	2.03E-03	7.32E-04	4.31E-04	2.00E-04	3.19E-03
Perylene	1.98E-07	0.00E+00		3.40E-06	1.98E-07
Phenanthrene	1.71E-04	2.11E-04	1.36E-04	1.65E-04	5.18E-04
Pyrene	1.22E-05	1.38E-06	1.30E-05	3.66E-05	2.65E-05
Non-HAP Organic Compounds					
Acetone[e]	0.00E+00	0.00E+00		1.95E-04	0.00E+00
Benzaldehyde	0.00E+00	0.00E+00			0.00E+00
Butane	1.51E-02	0.00E+00			1.51E-02
Butyraldehyde	0.00E+00	0.00E+00			0.00E+00
Crotonaldehyde[e]	0.00E+00	0.00E+00			0.00E+00
Ethylene	1.58E-01	0.00E+00		3.68E-03	1.58E-01
Heptane	2.12E-01	0.00E+00			2.12E-01
Hexanal	0.00E+00	0.00E+00			0.00E+00
Isovaleraldehyde	0.00E+00	0.00E+00			0.00E+00
2-Methyl-1-pentene	9.00E-02	0.00E+00			9.00E-02
2-Methyl-2-butene	1.31E-02	0.00E+00			1.31E-02
3-Methylpentane	4.28E-03	0.00E+00			4.28E-03
1-Pentene	4.95E-02	0.00E+00			4.95E-02
n-Pentane[e]	4.73E-03	0.00E+00			4.73E-03
Valeraldehyde[e]	0.00E+00	0.00E+00			0.00E+00
Metals					
Antimony[e]	1.22E-04	2.26E-04			3.48E-04
Arsenic[e]	3.78E-04	5.68E-05			4.35E-04
Barium[e]	3.92E-03	1.11E-04			4.03E-03
Beryllium[e]	0.00E+00	1.20E-06			1.20E-06
Cadmium[e]	2.77E-04	1.71E-05			2.94E-04
Chromium[e]	3.71E-03	3.64E-05			3.75E-03
Cobalt[e]	1.76E-05	2.59E-04			2.77E-04
Copper[e]	2.09E-03	7.58E-05			2.17E-03
Hexavalent Chromium[e]	3.04E-04	1.07E-05			3.14E-04
Manganese[e]	5.20E-03	1.29E-04			5.33E-03
Mercury[e]	1.62E-04	4.87E-06			1.67E-04
Molybdenum[e]	0.00E+00	3.39E-05			3.39E-05
Nickel[e]	4.25E-02	3.64E-03			4.62E-02
Phosphorus[e]	1.89E-02	4.07E-04			1.93E-02
Silver[e]	3.24E-04	0.00E+00			3.24E-04
Selenium[e]	2.36E-04	2.94E-05			2.66E-04
Thallium[e]	2.77E-06				2.77E-06
Vanadium[e]	0.00E+00	1.37E-03			1.37E-03
Zinc[e]	4.12E-02	1.25E-03			4.24E-02

Max Controlled Emissions of Any Pollutant from Drum Mix HMA Plant Fabric Filter, Tank Heater, Generator, Silo Fill/Load-out

A. Drum Mix Plant: **250** Tons/hour 180 Hours/year **45,000** Tons/year **2,000** Tons/day
Maximum emission for each pollutant from any fuel-burning option selected. Fuels Selected = LPG/Propane
B. Tank Heater: **2.9500** MMBtu/hr **4,000** Hours/year **12** hrs/day
Maximum emission for each pollutant from any fuel-burning option selected. Fuels Selected = #2 Fuel Oil
C1. Generator G1: **2.04** gal/hour **2000** Hours/year #2 Fuel Oil IC Engine <600hp **10** hrs/day
C2. Generator G2: **45.77** gal/hour **1000** Hours/year #2 Fuel Oil IC Engine > 600hp **10** hrs/day

Pollutant	**A Drum Mix** Max Emission Rate for Pollutant (T/yr)	**B Asphalt Tank Heater** Max Emission Rate for Pollutant (T/yr)	**C Generator** Max Emission Rate for Pollutant (T/yr)	**D Load-out, Silo Filling, & Tank Storage** Emission Rate for Pollutant (T/yr)	**E POINT SOURCE TOTAL** of Max Emission Rates from A, B, & C (T/yr) Exclude Fugitives (D)
non-PAH HAPs[g]					
Bromomethane[e]				2.24E-05	0.00E+00
2-Butanone (see Methyl Ethyl Ketone)					0.00E+00
Carbon disulfide[e]				5.60E-05	0.00E+00
Chloroethane (Ethyl chloride[e])				1.12E-05	0.00E+00
Chloromethane (Methyl chloride[e])				7.71E-05	0.00E+00
Cumene				1.03E-04	0.00E+00
n-Hexane				0.00E+00	0.00E+00
Methylene chloride (Dichloromethane[e])				7.40E-07	0.00E+00
MTBE					0.00E+00
Styrene[e]				2.16E-05	0.00E+00
Tetrachloroethene (Tetrachloroethylene[e])				7.21E-06	0.00E+00
1,1,1-Trichloroethane (Methyl chloroform[e])				0.00E+00	0.00E+00
Trichloroethene (Trichloroethylene[e])				0.00E+00	0.00E+00
Trichlorofluoromethane				1.22E-06	0.00E+00
m-/p-Xylene[e]				9.32E-04	0.00E+00
o-Xylene[e]				9.05E-04	0.00E+00
Phenol[e,f]				9.05E-05	0.00E+00
Non-HAP Organic Compounds					
Methane				7.74E-02	0.00E+00

e) IDAPA Toxic Air Pollutant

Facility: **Avail Valley Construction-ID, LLC - Driggs**

7/21/2021 13:32 **Permit/Facility ID:** **P-2021.0008** **081-00009**

CRITERIA POLLUTANT MODELING

POUNDS PER HOUR - POINT AND PSEUDO-STACK SOURCES

Maximum Controlled Emissions of Any Pollutant from Drum Mix HMA Plant with Fabric Filter, Tank Heater, Generator, Silo Fill/Load-out

A. Drum Mix Plant: **250** Tons/hour 180 Hours/year **45,000** Tons/year **2,000** Tons/day 8. hr/day 180 hr/yr

Maximum emission for each pollutant from any fuel-burning options selected on "Facility Data" worksheet. Fuels Selected =

				LPG/Propane

B. Tank Heater: **2.9500** MMBtu Rate **4,000** Hours/year

0.0015% S	0.5000% S		**12** hrs/day

Maximum emission for each pollutant for heater burning any fuel selected on "Facility Data" worksheet. Fuels Selected =

0.0500% S	#2 Fuel Oil	

C1. IC Engine 1: **2.04** gal/hour **2000** Hours/year IC Engine < 600hp

0.0500% S	#2 Fuel Oil	**10** hrs/day

C2. IC Engine 2: **45.77** gal/hour **1000** Hours/year IC Engine > 600hp

0.0500% S	#2 Fuel Oil	**10** hrs/day

Max 1-hour, 3-hour, and 8-hour averages

Pollutant	**A Drum Mix** Max Emission Rate for Pollutant (lb/hr)	**B Asphaltic Oil Tank Heater** Max Emission Rate for Pollutant (lb/hr)	**C1 IC1< 600 bhp Generator** Max Emission Rate for Pollutant (lb/hr)	**C2 IC2 > 600 bhp Generator** Max Emission Rate for Pollutant (lb/hr)	**D1 Silo Filling** Emission Rate for Pollutant (lb/hr)	**D2 Load-out** Emission Rate for Pollutant (lb/hr)	See **Scalping Scrn & Transfer Points"** worksheet for 1-hour, 24-hour, and annual PM10 emission rates from those sources.
PM (total)							
PM-10 (total)	6.80	4.95E-02	8.68E-02	8.15E-01	1.46E-01	1.30E-01	
PM-2.5	6.22	3.32E-02	1.96E-02	3.49E-01	1.46E-01	1.30E-01	
CO	32.50	1.08E-01	2.66E-01	5.33E+00	2.95E-01	3.37E-01	
NOx	9.75	5.17E-01	1.23E+00	2.01E+01			
SO_2	0.85	1.53E-01	8.12E-03	3.17E-01			
VOC	8.00	1.20E-02	1.01E-01	5.64E-01	3.05E-02	9.77E-01	
Lead	1.55E-04	3.25E-05					

Max 24-hour averages

Pollutant	**A Drum Mix** Max Emission Rate for Pollutant (lb/hr)	**B Asphalt Tank Heater** Max Emission Rate for Pollutant (lb/hr)	**C1 G1 < 600 hp Generator** Max Emission Rate for Pollutant (lb/hr)	**C2 G2 > 600hp Generator** Max Emission Rate for Pollutant (lb/hr)	**D1 Silo Filling** Emission Rate for Pollutant (lb/hr)	**D2 Load-out** Emission Rate for Pollutant (lb/hr)	See **Scalping Scrn & Transfer Points"** worksheet for 1-hour, 24-hour, and annual PM10 emission rates from those sources.
PM (total)							
PM-10 (total)	2.27	2.48E-02	3.62E-02	3.40E-01	4.88E-02	4.35E-02	
PM-2.5	2.07	1.66E-02	8.17E-03	0.145301333	4.88E-02	4.35E-02	
CO							
NOx							
SO_2	0.28	7.64E-02	3.38E-03	1.32E-01			
VOC							
Lead							

Max Annual averages

Pollutant	**A Drum Mix** Max Emission Rate for Pollutant (lb/hr)	**B Asphalt Tank Heater** Max Emission Rate for Pollutant (lb/hr)	**C1 G1< 600 hp Generator** Max Emission Rate for Pollutant (lb/hr)	**C2 G2 > 600hp Generator** Max Emission Rate for Pollutant (lb/hr)	**D1 Silo Filling** Emission Rate for Pollutant (lb/hr)	**D2 Load-out** Emission Rate for Pollutant (lb/hr)	See **Scalping Scrn & Transfer Points"** worksheet for 1-hour, 24-hour, and annual PM10 emission rates from those sources.
PM (total)							
PM-10 (total)	0.14	2.26E-02	1.98E-02	9.31E-02	3.01E-03	2.68E-03	
PM-2.5	0.13	1.51E-02					
CO							
NOx	0.20	2.36E-01	0.28	2.29			
SO_2	0.02	0.07	1.85E-03	0.04			
VOC							
Lead							

Facility: Avail Valley Construction-ID, LLC - Driggs

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TAPs EL Screen - ALL SOURCES

586 pollutants are shown in bold

Max Emissions of Any Pollutant from Drum Mix HMA Plant Fabric Filter, Tank Heater, Silo Fill/Load-out - Generator not included

A. Drum Mix Plant: **250** Tons/hour 180 Hours/year **45,000** Tons/year **2,000** Tons/day

Maximum emission for each pollutant from any fuel-burning option selected on "Facility Data" worksheet

B. Tank Heater: **2.9500** MMBtu Rated **4,000** Hours/year **D. Include all emissions from Load-out/Silo Filling?** **Yes**

Maximum emission for each pollutant for heater burning any fuel selected on "Facility Data" worksheet Short Term Source Factor 586 ELs? 1

C1. IC Engine G1: **2.04** gal/hour **2000** Hours/year IC Engine <600hp #2 Fuel Oil **10** hrs/day

C2. IC Engine G2: **45.77** gal/hour **1000** Hours/year IC Engine > 600hp #2 Fuel Oil **10** hrs/day

Pollutant	**TOTAL** of Max Emission Rates from A, B, & D (lb/hr)	**TAPs** Screening Emission Limit (EL) Increment[b] (lb/hr)	**TAPs** Emissions Exceed EL Increment?	**Modeled? Meets AAC or AACC?**
HCl [e]	0.000	0.05	No	
Dioxins		**Toxic Equivalency Factor[c]**	**Adjusted Emission Rate (lb/hr)**	
2,3,7,8-TCDD	0.00E+00	1.0	0.00E+00	
Total TCDD	0.00E+00	n/a		
1,2,3,7,8-PeCDD	0.00E+00	1.0	0.00E+00	
Total PeCDD	0.00E+00	n/a		
1,2,3,4,7,8-HxCDD	6.78E-12	0.1	6.78E-13	
1,2,3,6,7,8-HxCDD	0.00E+00	0.1	0.00E+00	
1,2,3,7,8,9-HxCDD	7.47E-12	0.1	7.47E-13	
Total HxCDD	0.00E+00	n/a		
1,2,3,4,6,7,8-Hp-CDD	1.47E-10	0.01	1.47E-12	
Total HpCDD	1.97E-10	n/a		
Octa CDD	1.57E-09	0.0003	4.72E-13	
Total PCDD	1.97E-09	n/a		
Furans				
2,3,7,8-TCDF	0.00E+00	0.1	0.00E+00	
Total TCDF	3.24E-11	n/a		
1,2,3,7,8-PeCDF	0.00E+00	0.03	0.00E+00	
2,3,4,7,8-PeCDF	0.00E+00	0.3	0.00E+00	
Total PeCDF	4.72E-12	n/a		
1,2,3,4,7,8-HxCDF	0.00E+00	0.1	0.00E+00	
1,2,3,6,7,8-HxCDF	0.00E+00	0.1	0.00E+00	
2,3,4,6,7,8-HxCDF	0.00E+00	0.1	0.00E+00	
1,2,3,7,8,9-HxCDF	0.00E+00	0.1	0.00E+00	
Total HxCDF	1.97E-11	n/a		
1,2,3,4,6,7,8-HpCDF	0.00E+00	0.01	0.00E+00	
1,2,3,4,7,8,9-HpCDF	0.00E+00	0.01	0.00E+00	
Total HpCDF	9.54E-11	n/a		
Octa CDF	1.18E-10	0.0003	3.54E-14	
Total PCDF	3.05E-10	n/a		
Total PCDD/PCDF	2.26E-09	n/a		
TOTAL	Adjusted lb/hr	TAPs EL for 2,3,7,8 TCDD	**Exceeds TAPs EL?**	**Modeled?**
Dioxin/Furans[c]	3.41E-12	1.50E-10	No	
Non-PAH HAPs				
Acetaldehyde	0.00E+00	3.00E-03	No	
Acrolein	0.00E+00	0.017	No	
Benzene	2.03E-03	8.00E-04	Exceeds	
1,3-Butadiene				
Ethylbenzene	2.14E-02	29	No	
Formaldehyde	1.64E-02	5.10E-04	Exceeds	
Hexane	7.82E-02	12	No	
Isooctane	3.34E-03			
Methyl Ethyl Ketone	5.66E-04	39.3	No	
Pentane	0.00E+00	118	No	
Propionaldehyde	0.00E+00	0.0287	No	
Quinone	0.00E+00	0.027	No	
Methyl chloroform	4.00E-03	127	No	
Toluene	1.39E-02	25	No	
Xylene	2.35E-02	29	No	

Pollutant	**TOTAL** of Max Emission Rates from A, B, & D (lb/hr)	**TAPs** Screening Emission Limit (EL) Increment[b] (lb/hr)	**TAPs** Emissions Exceed EL Increment?	**Modeled? Meets AAC or AACC?**
PAH HAPs				
2-Methylnaphthalene	4.91E-04	9.10E-05	Exceeds	
3-Methylchloranthrene	0.00E+00	2.50E-06	No	
Acenaphthene	2.31E-05	9.10E-05	No	
Acenaphthylene	4.68E-05	9.10E-05	No	
Anthracene	5.82E-06	9.10E-05	No	
Benzo(a)anthracene	2.14E-06			see POM
Benzo(a)pyrene	9.06E-08	2.00E-06	No	see POM
Benzo(b)fluoranthene	1.63E-06			see POM
Benzo(e)pyrene	8.26E-07	9.10E-05	No	
Benzo(g,h,I)perylene	2.39E-07	9.10E-05	No	
Benzo(k)fluoranthene	2.49E-07			see POM
Chrysene	5.47E-06			see POM
Dibenzo(a,h)anthracene	6.48E-09			see POM
Dichlorobenzene	0.00E+00	9.10E-05	No	
Fluoranthene	6.40E-06	9.10E-05	No	
Fluorene	4.65E-05	9.10E-05	No	
Indeno(1,2,3-cd)pyrene	4.42E-08			see POM
Naphthalene[e]	6.75E-04	9.10E-05	Exceeds	
Perylene	8.22E-07	9.10E-05	No	
Phenanthrene	1.25E-04	9.10E-05	Exceeds	
Pyrene	1.15E-05	9.10E-05	No	
PolycyclicOrganicMatter[d]	9.63E-06	2.00E-06	Exceeds	
Non-HAP Organic Compounds				
Acetone	7.21E-04	119	No	
Benzaldehyde	0.00E+00			
Butane	5.58E-02			
Butyraldehyde	0.00E+00			
Crotonaldehyde	0.00E+00	0.38	No	
Ethylene	5.97E-01			
Heptane	7.83E-01	109	No	
Hexanal	0.00E+00			
Isovaleraldehyde	0.00E+00			
2-Methyl-1-pentene	3.33E-01			
2-Methyl-2-butene	4.83E-02			
3-Methylpentane	1.58E-02			
1-Pentene	1.83E-01			
n-Pentane[e]	1.75E-02	118	No	
Valeraldehyde (n-Valeraldehyde)	0.00E+00	11.7	No	
Metals				
Antimony[e]	5.07E-04	0.033	No	
Arsenic	9.93E-05	1.50E-06	Exceeds	
Barium	1.45E-02	0.033	No	
Beryllium	2.73E-07	2.80E-05	No	
Cadmium	6.71E-05	3.70E-06	Exceeds	
Chromium	1.38E-02	0.033	No	
Cobalt	1.30E-04	0.0033	No	
Copper	7.77E-03	0.013	No	
Hexavalent Chromium	7.18E-05	5.60E-07	Exceeds	
Manganese	1.93E-02	0.067	No	
Mercury	6.01E-04	0.003	No	
Molybdenum	8.47E-06	0.333	No	
Nickel	1.05E-02	2.70E-05	Exceeds	
Phosphorus	7.01E-02	0.007	Exceeds	
Silver	1.20E-03	0.007	No	
Selenium	8.82E-04	0.013	No	
Thallium	1.03E-05	0.007	No	
Vanadium	3.42E-04	0.003	No	
Zinc	1.53E-01	0.667	No	

a) Reserved.

b) Toxic Air Pollutants, IDAPA 58.01.01.585 and .586, levels in effect as of February 25, 2009

c) 2005, Van den Berg, et al, The 2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-Like Compounds, *Toxicological Sciences* 93(2), 223-241 (2006). Accessible at http://toxsci.oxfordjournals.org/cgi/reprint/93/2/223.
Use of the 2005 WHO toxic equivalency factors (TEFs) is consistent with current EPA recommendations for TRI reporting (72 FR 26544, May 10, 2007)
n/a = not available. IDAPA 58.01.01.586, TAPs Carcinogenic Increments: Total of adjusted emission rates are treated as a single TAP (2,3,7,8 TCDD)

d) IDAPA 58.01.01.586, Polycyclic Organic Matter: Emissions of highlighted PAHs h shall be considered together as one TAP equivalent in potency to benzo(a)pyrene.

e) Naphthalene is listed as a noncarcinogenic TAP in IDAPA 58.01.01.585 (EL = 3.33 lb/hr), but must also be considered as a carcinogenic PAH (EL = 9.10E-05 lb/hr)

TAPs lb/hr rates are 24-hr averages except for those in bold text. Lb/hr rates for bold TAPs (carcinogens) are annual averages.

Pollutants shown in blue text are emitted only when burning Used Oil, but not when burning #2 Fuel Oil or Natural Gas

Facility: **Avail Valley Construction-ID, LLC - Driggs**

7/21/2021 13:32 **Permit/Facility ID:** **P-2021.0008** **081-00009**

TAPs EL Screen - ALL SOURCES

Max Emissions of Any Pollutant from Drum Mix HMA Plant Fabric Filter, Tank Heater, Silo Fill/Load-out - Generator not included

A. Drum Mix Plant: **250** Tons/hour 180 Hours/year **45,000** Tons/year **2,000** Tons/day

Maximum emission for each pollutant from any fuel-burning option selected in "Facility Data" worksheet.

B. Tank Heater: **2.9500** MMBtu Rated **4,000** Hours/year **D. Include all emissions from Load-out/Silo Filling?** **Yes**

Maximum emission for each pollutant for heater burning any fuel selected in "Facility Data" worksheet.

C1. IC Engine G1: **2.04** gal/hour **2000** Hours/year #2 Fuel Oil **10** hrs/day

C2. IC Engine G2: **45.77** gal/hour **1000** Hours/year #2 Fuel Oil **10** hrs/day

Pollutant	**TOTAL** of Max Emission Rates from A, B, & D (lb/hr)	**TAPs** Screening Emission Limit (EL) Increment[b] (lb/hr)	**TAPs** Emissions Exceed EL Increment?	**Modeled?**
non-PAH HAPs[g]				
Bromomethane (Methyl bromide[e])	8.30E-05	1.27	No	
2-Butanone (see Methyl Ethyl Ketone)				
Carbon disulfide[e]	2.08E-04	2	No	
Chloroethane (Ethyl chloride[e])	4.14E-05	176	No	
Chloromethane (Methyl chloride[e])	2.86E-04	6.867	No	
Cumene[e]	3.81E-04	16.3	No	
n-Hexane[e] (see Hexane[e])				
Methylene chloride (Dichloromethane[e])	2.74E-06	1.60E-03	No	
MTBE	0.00E+00			
Styrene[e]	8.01E-05	6.67	No	
Tetrachloroethene (Tetrachloroethylene[e])	2.67E-05	1.30E-02	No	
1,1,1-Trichloroethane (see Methyl chloroform[e])				
Trichloroethene (Trichloroethylene[e])	0.00E+00	17.93	No	
Trichlorofluoromethane	4.51E-06			
m-/p-Xylene[e] (added into Xylene[e])				
o-Xylene[e] (added into Xylene[e])				
Phenol[e,f]	3.35E-04	1.27	No	
Non-HAP Organic Compounds				
Methane	2.87E-01			

a) For HMA facilities subject to NSPS (40 CFR 60, Subpart I), PTE includes fugitive emissions of PM from load-out, silo filling & storage tank operations.

e) IDAPA Toxic Air Pollutant, 58.01.01.585 or .586

Facility: Avail Valley Construction-ID, LLC - Driggs

7/21/2021 13:32 **Permit/Facility ID:** P-2021.0008 081-00009

TAPs MODELING

POUNDS PER HOUR - POINT AND PSEUDO-STACK SOURCES

Maximum Controlled Emissions of Any Pollutant from Drum Mix HMA Plant with Fabric Filter, Tank Heater, Generator, Silo Fill/Load-out

A. Drum Mix Plant: **250** Tons/hour 180 Hours/year **45,000** Tons/year **2,000** Tons/day

Maximum emission for each pollutant from any fuel-burning options selected on "Facility Data" worksheet. Fuels Selected = LPG/Propane

B. Tank Heater: **2.9500** MMBtu Rated **4,000** Hours/year **12** hrs/day

Maximum emission for each pollutant for heater burning any fuel selected on "Facility Data" worksheet. Fuels Selected = #2 Fuel Oil

C1. IC Engine: **2.04** gal/hour **2000** Hours/year IC Engine < 600hp #2 Fuel Oil **10** hrs/day

C2. IC Engine: **45.77** gal/hour **1000** Hours/year IC Engine > 600h #2 Fuel Oil **10** hrs/day

Pollutant	A **Drum Dryer** Max Emission Rate for Pollutant (lb/hr)	B **Asphaltic Oil Tank Heater** Max Emission Rate for Pollutant (lb/hr)	C1 * see note IC1< 600 bhp **Generator** Max Emission Rate for Pollutant (lb/hr)	C2 * see note IC2 > 600 bhp **Generator** Max Emission Rate for Pollutant (lb/hr)	D1 **Silo Filling** Emission Rate for Pollutant (lb/hr)	D2 **Load-out** Emission Rate for Pollutant (lb/hr)
PM (total)						
PM-10 (total)						
PM-2.5						
CO						
NOx						
SO_2						
VOC						
Lead						
HCl [e]	0.00E+00	0.00E+00	0	0		
Dioxins[e]						
2,3,7,8-TCDD	0.00E+00		0	0		
Total TCDD	0.00E+00		0	0		
1,2,3,7,8-PeCDD	0.00E+00		0	0		
Total PeCDD	0.00E+00		0	0		
1,2,3,4,7,8-HxCDD	0.00E+00	6.78E-12	0	0		
1,2,3,6,7,8-HxCDD	0.00E+00		0	0		
1,2,3,7,8,9-HxCDD	0.00E+00	7.47E-12	0	0		
Total HxCDD	0.00E+00		0	0		
1,2,3,4,6,7,8-Hp-CDD	0.00E+00	1.47E-10	0	0		
Total HpCDD	0.00E+00	1.97E-10	0	0		
Octa CDD	0.00E+00	1.57E-09	0	0		
Total PCDD[h]	0.00E+00	1.97E-09	0	0		
Furans[e]						
2,3,7,8-TCDF	0.00E+00		0	0		
Total TCDF	0.00E+00	3.24E-11	0	0		
1,2,3,7,8-PeCDF	0.00E+00		0	0		
2,3,4,7,8-PeCDF	0.00E+00		0	0		
Total PeCDF	0.00E+00	4.72E-12	0	0		
1,2,3,4,7,8-HxCDF	0.00E+00		0	0		
1,2,3,6,7,8-HxCDF	0.00E+00		0	0		
2,3,4,6,7,8-HxCDF	0.00E+00		0	0		
1,2,3,7,8,9-HxCDF	0.00E+00		0	0		
Total HxCDF	0.00E+00	1.97E-11	0	0		
1,2,3,4,6,7,8-HpCDF	0.00E+00		0	0		
1,2,3,4,7,8,9-HpCDF	0.00E+00		0	0		
Total HpCDF	0.00E+00	9.54E-11	0	0		
Octa CDF	0.00E+00	1.18E-10	0	0		
Total PCDF[h]	0.00E+00	3.05E-10	0	0		
Total PCDD/PCDF[h]	0.00E+00	2.26E-09	0	0		
Non-PAH HAPs						
Acetaldehyde[e]	0.00E+00		0	0		
Acrolein[e]	0.00E+00		0	0		
Benzene[e]	**2.00E-03**	**0.00E+00**	0	0	**2.00E-05**	**1.11E-05**
1,3-Butadiene[e]			0	0		
Ethylbenzene[e]	2.00E-02		0	0	3.86E-04	9.70E-04
Formaldehyde[e]	**1.59E-02**	**3.44E-05**	0	0	**4.32E-04**	**1.88E-05**
Hexane[e]	7.67E-02	0.00E+00	0	0	1.02E-03	5.20E-04
Isooctane	3.33E-03		0	0	3.15E-06	6.24E-06
Methyl Ethyl Ketone[e]	0.00E+00		0	0	3.96E-04	1.70E-04
Pentane[e]		0.00E+00	0	0		
Propionaldehyde[e]	0.00E+00		0	0		
Quinone[e]	0.00E+00		0	0		
Methyl chloroform[e]	4.00E-03		0	0		
Toluene[e]	1.25E-02	0.00E+00	0	0	6.30E-04	7.28E-04
Xylene[e]	1.67E-02		0	0	2.61E-03	4.19E-03
POM (7-PAH Group)	**2.81E-06**	**9.83E-07**		**0.00E+00**	**3.47E-06**	**2.36E-06**

Pollutant	A **Drum Dryer** Max Emission Rate for Pollutant (lb/hr)	B **Asphaltic Oil Tank Heater** Max Emission Rate for Pollutant (lb/hr)	C1 * see note IC1< 600 bhp **Generator** Max Emission Rate for Pollutant (lb/hr)	C2 * see note IC2 > 600 bhp **Generator** Max Emission Rate for Pollutant (lb/hr)	D **Silo Filling** Emission Rate for Pollutant (lb/hr)	D2 **Load-out** Emission Rate for Pollutant (lb/hr)
PAH HAPs						
2-Methylnaphthalene	**3.80E-04**	**0.00E+00**	0	0	**6.87E-05**	**4.17E-05**
3-Methylchloranthrene[e]	**0.00E+00**	**0.00E+00**	0	0		
Acenaphthene	**7.19E-06**	**5.21E-06**	0	0	**6.13E-06**	**4.55E-06**
Acenaphthylene	**4.42E-05**	**1.97E-06**	0	0	**1.83E-07**	**4.90E-07**
Anthracene	**1.13E-06**	**1.77E-06**	0	0	**1.70E-06**	**1.23E-06**
Benzo(a)anthracene[e]	**1.08E-06**	**0.00E+00**	0	0	**7.30E-07**	**3.33E-07**
Benzo(a)pyrene[e]	**5.03E-08**	**0.00E+00**	0	0	**0.00E+00**	**4.03E-08**
Benzo(b)fluoranthene[e]	**5.14E-07**	**9.83E-07**	0	0	**0.00E+00**	**1.33E-07**
Benzo(e)pyrene	**5.65E-07**	**0.00E+00**	0	0	**1.24E-07**	**1.37E-07**
Benzo(g,h,I)perylene	**2.05E-07**	**0.00E+00**	0	0	**0.00E+00**	**3.33E-08**
Benzo(k)fluoranthene[e]	**2.11E-07**	**0.00E+00**	0	0	**0.00E+00**	**3.85E-08**
Chrysene[e]	**9.25E-07**	**0.00E+00**	0	0	**2.74E-06**	**1.80E-06**
Dibenzo(a,h)anthracene[e]	**0.00E+00**	**0.00E+00**	0	0	**0.00E+00**	**6.48E-09**
Dichlorobenzene	**0.00E+00**	**0.00E+00**	0	0		
Fluoranthene	**3.13E-06**	**4.33E-07**	0	0	**1.96E-06**	**8.76E-07**
Fluorene	**1.95E-05**	**3.15E-07**	0	0	**1.32E-05**	**1.35E-05**
Indeno(1,2,3-cd)pyrene[e]	**3.60E-08**	**0.00E+00**	0	0	**0.00E+00**	**8.23E-09**
Naphthalene[e]	**4.62E-04**	**1.67E-04**	0	0	**2.37E-05**	**2.19E-05**
Perylene	**4.52E-08**	**0.00E+00**	0	0	**3.91E-07**	**3.85E-07**
Phenanthrene	**3.90E-05**	**4.82E-05**	0	0	**2.35E-05**	**1.42E-05**
Pyrene	**2.77E-06**	**3.15E-07**	0	0	**5.74E-06**	**2.63E-06**
Non-HAP Organic Compounds						
Acetone[e]	0.00E+00	0.00E+00	0	0	5.59E-04	1.62E-04
Benzaldehyde	0.00E+00	0.00E+00	0	0		
Butane	5.58E-02	0.00E+00	0	0		
Butyraldehyde	0.00E+00	0.00E+00	0	0		
Crotonaldehyde[e]	0.00E+00	0.00E+00	0	0		
Ethylene	5.83E-01	0.00E+00	0	0	1.12E-02	2.46E-03
Heptane	7.83E-01	0.00E+00	0	0		
Hexanal	0.00E+00	0.00E+00	0	0		
Isovaleraldehyde	0.00E+00	0.00E+00	0	0		
2-Methyl-1-pentene	3.33E-01	0.00E+00	0	0		
2-Methyl-2-butene	4.83E-02	0.00E+00	0	0		
3-Methylpentane	1.58E-02	0.00E+00	0	0		
1-Pentene	1.83E-01	0.00E+00	0	0		
n-Pentane	1.75E-02	0.00E+00	0	0		
Valeraldehyde[e]	0.00E+00	0.00E+00	0	0		
Metals						
Antimony[e]	4.50E-04	5.65E-05	0	0		
Arsenic[e]	**8.63E-05**	**1.30E-05**	0	0		
Barium[e]	1.45E-02	2.77E-05	0	0		
Beryllium[e]	**0.00E+00**	**2.73E-07**	0	0		
Cadmium[e]	**6.32E-05**	**3.91E-06**	0	0		
Chromium[e]	1.38E-02	9.10E-06	0	0		
Cobalt[e]	6.50E-05	6.48E-05	0	0		
Copper[e]	7.75E-03	1.89E-05	0	0		
Hexavalent Chromium[e]	**6.93E-05**	**2.44E-06**	0	0		
Manganese[e]	1.93E-02	3.23E-05	0	0		
Mercury[e]	6.00E-04	1.22E-06	0	0		
Molybdenum[e]	0.00E+00	8.47E-06	0	0		
Nickel[e]	**9.71E-03**	**8.31E-04**	0	0		
Phosphorus[e]	7.00E-02	1.02E-04	0	0		
Silver[e]	1.20E-03	0.00E+00	0	0		
Selenium[e]	8.75E-04	7.35E-06	0	0		
Thallium[e]	1.03E-05	0.00E+00	0	0		
Vanadium[e]	0.00E+00	3.42E-04	0	0		
Zinc[e]	1.53E-01	3.13E-04	0	0		

e) IDAPA Toxic Air Pollutant

Criteria Pollutant lb/hr emissions are maximum 1-hr averages

TAPs lb/hr rates are 24-hr averages except for those in bold text. Lb/hr rates for bold TAPs (carcinogens) are annual averages.

Pollutants shown in blue text are emitted only when burning Used Oil, but not when burning #2 Fuel Oil or Natural Gas

APPENDIX B – AMBIENT AIR QUALITY IMPACT ANALYSIS

M E M O R A N D U M

DATE: May 20, 2021

TO: Zach Pierce, Permit Writer, Air Program

FROM: Kevin Schilling, Stationary Source Modeling Coordinator, Air Program

PROJECT: P-2021.0008 PROJ 62589, Modification of Existing Permit to Construct (PTC) for Avail Valley Construction-ID, LLC Hot Mix Asphalt Plant.

SUBJECT: Demonstration of Compliance with IDAPA 58.01.01.203.02 (NAAQS) and 203.03 (TAPs) as it relates to air quality impact analyses.

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Acronyms, Units, and Chemical Nomenclature

AAC	Acceptable Ambient Concentration of a non-carcinogenic TAP
AACC	Acceptable Ambient Concentration of a Carcinogenic TAP
acfm	Actual cubic feet per minute
AERMAP	The terrain data preprocessor for AERMOD
AERMET	The meteorological data preprocessor for AERMOD
AERMOD	American Meteorological Society/Environmental Protection Agency Regulatory Model
Appendix W	40 CFR 51, Appendix W – Guideline on Air Quality Models
ARM2	Ambient Ratio Method 2
Avail Valley	Avail Valley Construction-ID, LLC
bhp	brake horsepower
BPIP	Building Profile Input Program
BRC	Below Regulatory Concern
CFR	Code of Federal Regulations
CMAQ	Community Multi-Scale Air Quality Modeling System
CO	Carbon Monoxide
DEQ	Idaho Department of Environmental Quality
EL	Emissions Screening Level of a TAP
EPA	United States Environmental Protection Agency
GEP	Good Engineering Practice
HMA	hot mix asphalt
hr	hours
IC	internal combustion
Idaho Air Rules	Rules for the Control of Air Pollution in Idaho, located in the Idaho Administrative Procedures Act 58.01.01
ISCST3	Industrial Source Complex Short Term 3 dispersion model
K	Kelvin
m	Meters
m/sec	Meters per second
MMBtu	Million British Thermal Units
NAAQS	National Ambient Air Quality Standards
NO	Nitrogen Oxide
NO_2	Nitrogen Dioxide
NOx	Oxides of Nitrogen
NWS	National Weather Service
O_3	Ozone
PAH	Polyaromatic Hydrocarbons
Pb	Lead
PM_{10}	Particulate matter with an aerodynamic particle diameter less than or equal to a nominal 10 micrometers
$PM_{2.5}$	Particulate matter with an aerodynamic particle diameter less than or equal to a nominal 2.5 micrometers
POM	Polycyclic Organic Matter
ppb	parts per billion
PRIME	Plume Rise Model Enhancement
PTC	Permit to Construct
PTE	Potential to Emit
SER	Significant Emission Rate
SIL	Significant Impact Level
SO_2	Sulfur Dioxide
TAP	Toxic Air Pollutant
T-RACT	Toxic Air Pollutant Reasonably Available Control Technology
USGS	United States Geological Survey
UTM	Universal Transverse Mercator

VOC	Volatile Organic Compounds
$\mu g/m^3$	Micrograms per cubic meter of air

1.0 Summary

Avail Valley Construction-ID, LLC (Avail Valley) submitted a Permit to Construct (PTC) application to replace their existing PTC, P-2020.0040, for operation of a portable hot mix asphalt (HMA) plant. The new PTC, P-2021.0008 PROJ 62589, is for operation of the same HMA plant, but operations only at the existing location in Driggs, Idaho. Idaho Administrative Procedures Act 58.01.01.203.02 and 203.03 (*Idaho Air Rules* Section 203.02 and 203.03) requires that no permit be issued unless it is demonstrated that applicable emissions do not result in violation of a National Ambient Air Quality Standard (NAAQS) or Toxic Air Pollutant (TAP) increment. This memorandum provides a summary of the applicable impact analysis requirements and a summary of those analyses used to demonstrate compliance with applicable NAAQS and TAP increments, as required by Idaho Air Rules Section 203.02 and 203.03.

The Idaho Department of Environmental Quality (DEQ) review of submitted data and DEQ analyses summarized by this memorandum addressed only the rules, policies, methods, and data pertaining to the air impact analyses used to demonstrate that estimated emissions associated with operation of the facility at the Driggs site will not cause or significantly contribute to a violation of any applicable air quality standard. This review did not address/evaluate compliance with other rules or analyses not pertaining to the air impact analyses. Evaluation of emission estimates was primarily the responsibility of the DEQ permit writer and is addressed in the main body of the DEQ Statement of Basis.

Table 1 presents key assumptions and results to be considered in the development of the permit. Idaho Air Rules require air impact analyses be conducted in accordance with methods outlined in 40 CFR 51, Appendix W *Guideline on Air Quality Models* (Appendix W). Appendix W requires that air quality impacts be assessed using atmospheric dispersion models with emissions and operations representative of design capacity or as limited by a federally enforceable permit condition.

The submitted information, in combination with DEQ's analyses: 1) utilized appropriate methods and models; 2) was conducted using reasonably accurate or conservative model parameters and input data (review of emissions estimates was addressed by the DEQ permit writer); 3) adhered to established DEQ guidelines for new source review dispersion modeling; 4) showed either a) that estimated potential/allowable emissions are at a level defined as below regulatory concern (BRC) and do not require a NAAQS compliance demonstration; b) that predicted pollutant concentrations from emissions associated with the project as modeled were below Significant Impact Levels (SILs) or other applicable regulatory thresholds; or c) that predicted pollutant concentrations from emissions associated with the project as modeled, when appropriately combined with co-contributing sources and background concentrations, were below applicable NAAQS at ambient air locations where and when the project has a significant impact; 5) showed that TAP emissions increases associated with the project will not result in increased emissions above ELs or ambient air impacts exceeding allowable TAP increments. This conclusion assumes that conditions in Table 1 are representative of facility design capacity or operations as limited by a federally enforceable permit condition. The DEQ permit writer should use Table 1 and other information presented in this memorandum to generate appropriate permit provisions/restrictions to assure the requirements of Appendix W are met regarding emissions representative of design capacity or permit allowable rates.

Summary of Submittals and Actions

- March 1, 2021: Application received by DEQ.
- March 4, 2021: Regulatory start date.
- March 29, 2021: Application determined complete by DEQ.

Table 1. KEY CONDITIONS USED IN MODELING ANALYSES FOR OPERATION AT THE IDAHO FALLS SITE	
Criteria/Assumption/Result	**Explanation/Consideration**
Emission Source Setback from Ambient Air Boundary. No setback distance is required when operating at the Driggs site, provided the HMA plant is operated as described in the memorandum and emissions points are positioned on the site as described in the application and in this memorandum.	A requirement for emission point setback from ambient air was not needed to assure compliance with applicable standards because impact analyses were performed using specific equipment placement at the site and the established ambient air boundary of the site.
Allowable Production. Maximum HMA production does not exceed allowable rates of 250 ton/hour and 45,000 ton/year.	Short-term and annual pollutant impact analyses were performed using emissions based on these rates. These rates must not be exceeded. A daily limit is not necessary for modeling purposes because PM_{10} and $PM_{2.5}$ non-fugitive emissions are below BRC levels.
Seasonal Operations. Air impact analyses were performed considering that the HMA plant will not operate during December 1 through March 31.	NAAQS and TAP increment compliance is not assured if operations occur during December 1 - March 31. A permit condition is needed to restrict operations from this period.
Operations with Generators. Diesel-fired internal combustion (IC) engines may be used at the site to generate power, consisting of an 896 brake horsepower (hp) engine operating up to 1,000 hour/year and a 40 hp engine operating up to 2,000 hour/year. The engines may operate simultaneously.	NAAQS compliance is not assured if larger IC engines are used to generate power or if they operate for periods exceeding stated operational hours. A daily limit on operational hours is not necessary for modeling purposes because PM_{10} and $PM_{2.5}$ non-fugitive emissions are below BRC levels. The application stated that the two engines will not operate simultaneously. DEQ's impact analyses that demonstrated compliance with NAAQS assumed continual operation. Therefore, a permit condition precluding simultaneous operation is not necessary.
General Emissions Rates. Emissions rates used in the impact analyses, as listed in this memorandum, must represent maximum emissions as given by design capacity, inherently limited by the process or configuration of the facility, or as limited by the issued permit for the specific pollutant and averaging period.	Compliance has not been demonstrated for emissions rates greater than those used in the air impact modeling analyses.
Location with other pollutant emitting equipment. Co-contributing emissions sources such as other HMA plants, concrete batch plants (CBPs), and/or rock crushing plants will not locate on the plant property within 1,000 feet of the drum dryer stack of the HMA plant, except as noted below for a rock crushing plant. NAAQS compliance is assured for the HMA plant operating with a co-contributing rock crushing plant, provided the HMA plant does not operate simultaneously with the rock crushing plant.	Emissions are considered co-contributing if they occur within 1,000 feet (305 meters) of each other. Avail Valley is not responsible for controlling other facilities from moving in nearby, provided they are not on the property controlled by Avail Valley. Neighboring facilities would be required to account for the HMA impacts for their own permitting analyses.

2.0 Background Information

This section provides background information relevant to the project and the site where the facility is located. It also provides a description of the applicable air impact analyses requirements for the project.

2.1 Project Description, Proposed Location, and Area Classification

The proposed project is repermitting of an existing HMA plant. The HMA plant will be permitted as a stationary source, replacing the existing permit for operation as a portable source. The facility is located at 15 S, 1750 E, Driggs, Idaho. The site-specific scenario consists of the following:

- A specific equipment configuration at the site, as specified by the applicant and as observed through using GoogleEarth;
- Identification of an ambient air boundary at the site, beyond which NAAQS and TAP increment compliance must be met;
- Indefinite operation at the site (no requirement to relocate every 12 months);
- Use of IC engines at the site to power generators;
- Operation of the plant on a seasonal basis, with no operations occurring during December 1 through March 31;
- Removal of the existing permit requirement of an emission point setback from ambient air provided emission points are configured as described in this memorandum.

Pollutant-emitting processes conducted at the HMA plant include drum drying aggregate (fueled by propane), mixing with asphalt oil, handling of aggregate materials, handling of produced asphalt, combustion of diesel in the asphalt tank heater, and combustion of diesel in IC engines to provide electrical power.

2.2 Air Impact Analyses Required for All Permits to Construct

Criteria pollutant and TAP impact analyses for a PTC are addressed in Idaho Air Rules Sections 203.02 and 203.03:

> *No permit to construct shall be granted for a new or modified stationary source unless the applicant shows to the satisfaction of the Department all of the following:*
>
> ***02. NAAQS**. The stationary source or modification would not cause or significantly contribute to a violation of any ambient air quality standard.*
>
> ***03. Toxic Air Pollutants.** Using the methods provided in Section 210, the emissions of toxic air pollutants from the stationary source or modification would not injure or unreasonably affect human or animal life or vegetation as required by Section 161. Compliance with all applicable toxic air pollutant carcinogenic increments and toxic air pollutant non-carcinogenic increments will also demonstrate preconstruction compliance with Section 161 with regards to the pollutants listed in Sections 585 and 586.*

Atmospheric dispersion modeling, using computerized simulations, is used to demonstrate compliance with both NAAQS and TAPs. Idaho Air Rules Section 202.02 states:

***Estimates of Ambient Concentrations**. All estimates of ambient concentrations shall be based on the applicable air quality models, data bases, and other requirements specified in 40 CFR 51 Appendix W (Guideline on Air Quality Models).*

2.3 Significant Impact Level and Cumulative NAAQS Impact Analyses

The SIL analysis for a new facility or proposed modification to a facility involves modeling estimated criteria air pollutant emissions from the facility or modification to determine the potential impacts to ambient air. Air impact analyses are required by Idaho Air Rules to be conducted according to methods outlined in Appendix W. Appendix W requires that facilities be modeled using emissions and operations representative of design capacity or as limited by a federally enforceable permit condition.

A facility or modification is considered to have a significant impact on air quality if maximum modeled impacts to ambient air exceed the established SIL listed in Idaho Air Rules Section 006 (referred to as a "significant contribution" in Idaho Air Rules) or as incorporated by reference as per Idaho Air Rules Section 107.03.b. Table 2 lists the applicable SILs.

If modeled maximum pollutant impacts to ambient air from the emissions sources associated with a new facility or modification exceed the SILs, then a cumulative NAAQS impact analysis is necessary to demonstrate compliance with NAAQS and Idaho Air Rules Section 203.02.

A cumulative NAAQS impact analysis for attainment area pollutants involves assessing ambient impacts (typically the design values consistent with the form of the standard) from facility-wide emissions, and emissions from any nearby co-contributing sources, and then adding a DEQ-approved background concentration value to the modeled result that is appropriate for the criteria pollutant/averaging-period at the facility location and the area of significant impact. The resulting pollutant concentrations in ambient air are then compared to the NAAQS listed in Table 2. Table 2 also lists SILs and specifies the modeled design value that must be used for comparison to the NAAQS. NAAQS compliance is evaluated on a receptor-by-receptor basis for the modeling domain.

If the cumulative NAAQS impact analysis indicates a violation of the standard, the permit may not be issued if the proposed project has a significant contribution (exceeding the SIL) to the modeled violation. This evaluation is made specific to both time and space. As an example, consider a hypothetical case where the SIL analysis indicates the project (new source or modification) has impacts exceeding the SIL and the cumulative impact analysis indicates a violation of the NAAQS. If project-specific impacts are below the SIL at the specific receptors showing the violations during the times when modeled violations occurred, then the project does not have a significant contribution to the specific violations.

Compliance with Idaho Air Rules Section 203.02 is generally demonstrated if: a) applicable specific criteria pollutant emission increases are at a level defined as BRC, using the criteria established by DEQ regulatory interpretation[1] (see Section 3.1.1 of this memorandum); or b) all modeled impacts of the SIL analysis are below the applicable SIL or other level determined to be inconsequential to NAAQS compliance; or c) modeled design values of the cumulative NAAQS impact analysis (modeling all emissions from the facility and co-contributing sources, and adding a background concentration) are less than applicable NAAQS at receptors where impacts from the proposed facility/modification exceeded the SIL or other identified level of consequence; or d) if the cumulative NAAQS analysis showed NAAQS violations, the impact of proposed facility/modification to any modeled violation was inconsequential (typically assumed to be less than the established SIL) for that specific receptor and for the specific modeled time when the violation occurred.

Table 2. APPLICABLE REGULATORY LIMITS				
Pollutant	**Averaging Period**	**Significant Impact Levels[a] ($\mu g/m^3$)[b]**	**Regulatory Limit[c] ($\mu g/m^3$)**	**Modeled Design Value Used[d]**
PM_{10}[e]	24-hour	5.0	150[f]	Maximum 6th highest[g]
$PM_{2.5}$[h]	24-hour	1.2	35[i]	Mean of maximum 8th highest[j]
	Annual	0.2	12[k]	Mean of maximum 1st highest[l]
Carbon monoxide (CO)	1-hour	2,000	40,000[m]	Maximum 2nd highest[n]
	8-hour	500	10,000[m]	Maximum 2nd highest[n]
Sulfur Dioxide (SO_2)	1-hour	3 ppb[o] (7.8 $\mu g/m^3$)	75 ppb[p] (196 $\mu g/m^3$)	Mean of maximum 4th highest[q]
	3-hour	25	1,300[m]	Maximum 2nd highest[n]
Nitrogen Dioxide (NO_2)	1-hour	4 ppb (7.5 $\mu g/m^3$)	100 ppb[r] (188 $\mu g/m^3$)	Mean of maximum 8th highest[s]
	Annual	1.0	100[t]	Maximum 1st highest[n]
Lead (Pb)	3-month[u]	NA	0.15[t]	Maximum 1st highest[n]
	Quarterly	NA	1.5[t]	Maximum 1st highest[n]
Ozone (O_3)	8-hour	40 TPY VOC[v]	70 ppb[w]	Not typically modeled

a. Idaho Air Rules Section 006 (definition for significant contribution) or as incorporated by reference as per Idaho Air Rules Section 107.03.b.
b. Micrograms per cubic meter.
c. Incorporated into Idaho Air Rules by reference, as per Idaho Air Rules Section 107.
d. The maximum 1st highest modeled value is always used for the significant impact analysis unless indicated otherwise. Modeled design values are calculated for each ambient air receptor.
e. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
f. Not to be exceeded more than once per year on average over 3 years.
g. Concentration at any modeled receptor when using five years of meteorological data.
h. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
i. 3-year mean of the upper 98th percentile of the annual distribution of 24-hour concentrations.
j. 5-year mean of the 8th highest modeled 24-hour concentrations at the modeled receptor for each year of meteorological data modeled. For the SIL analysis, the 5-year mean of the 1st highest modeled 24-hour impacts at the modeled receptor for each year.
k. 3-year mean of annual concentration. The NAAQS was revised from 15 $\mu g/m^3$ to12 $\mu g/m^3$ on December 14, 2012. However, this standard will not be applicable for permitting purposes in Idaho until it is incorporated by reference *sine die* into Idaho Air Rules (Spring 2014).
l. 5-year mean of annual averages at the modeled receptor.
m. Not to be exceeded more than once per year.
n. Concentration at any modeled receptor.
o. Interim SIL established by EPA policy memorandum.
p. 3-year mean of the upper 99th percentile of the annual distribution of maximum daily 1-hour concentrations.
q. 5-year mean of the 4th highest daily 1-hour maximum modeled concentrations for each year of meteorological data modeled. For the significant impact analysis, the 5-year mean of 1st highest modeled 1-hour impacts for each year is used.
r. 3-year mean of the upper 98th percentile of the annual distribution of maximum daily 1-hour concentrations.
s. 5-year mean of the 8th highest daily 1-hour maximum modeled concentrations for each year of meteorological data modeled. For the significant impact analysis, the 5-year mean of maximum modeled 1-hour impacts for each year is used.
t. Not to be exceeded in any calendar year.
u. 3-month rolling average.
v. An annual emissions rate of 40 ton/year of VOCs is considered significant for O_3.
w. Annual 4th highest daily maximum 8-hour concentration averaged over three years.

2.4 Toxic Air Pollutant Analyses

Emissions of toxic substances are generally addressed by Idaho Air Rules Section 161:

> *Any contaminant which is by its nature toxic to human or animal life or vegetation shall not be emitted in such quantities or concentrations as to alone, or in combination with other contaminants, injure or unreasonably affect human or animal life or vegetation.*

Permitting requirements for TAPs from new or modified sources are specifically addressed by Idaho Air Rules Section 203.03 and require the applicant to demonstrate to the satisfaction of DEQ the following:

> *Using the methods provided in Section 210, the emissions of toxic air pollutants from the stationary source or modification would not injure or unreasonably affect human or animal life or vegetation as required by Section 161. Compliance with all applicable toxic air pollutant carcinogenic increments and toxic air pollutant non-carcinogenic increments will also demonstrate preconstruction compliance with Section 161 with regards to the pollutants listed in Sections 585 and 586.*

Per Section 210, if the total project-wide emissions increase of any TAP associated with a new source or modification exceeds screening emission levels (ELs) of Idaho Air Rules Section 585 or 586, then the ambient impact of the emissions increase must be estimated. If ambient impacts are less than applicable Acceptable Ambient Concentrations (AACs) for non-carcinogens of Idaho Air Rules Section 585 and Acceptable Ambient Concentrations for Carcinogens (AACCs) of Idaho Air Rules Section 586, then compliance with TAP requirements has been demonstrated.

Idaho Air Rules Section 210.20 states that if TAP emissions from a specific source are regulated by the Department or EPA under 40 CFR 60, 61, or 63, then a TAP impact analysis under Section 210 is not required for that TAP. The DEQ permit writer evaluates the applicability of specific TAPs to the Section 210.20 exclusion.

3.0 Analytical Methods and Data

This section describes the methods and data used in analyses to demonstrate compliance with applicable air quality impact requirements.

3.1 Emission Source Data

Emissions of criteria pollutants and TAPs resulting from operation of the HMA plant were calculated by DEQ for various applicable averaging periods. DEQ's HMA plant emission calculation spreadsheet, modified to calculate dryer emissions as controlled by a venturi scrubber, was used to calculate emissions for the facility, given the specified equipment and requested operational rates. DEQ air impact analyses assured that the estimated potential emissions rates were properly used in the model. The rates listed must represent the maximum allowable rate as averaged over the specified period.

Emissions rates used in the dispersion modeling analyses, as listed in this memorandum, should be reviewed by the DEQ permit writer and compared with those in the final emissions inventory used in the DEQ Statement of Basis. All modeled criteria air pollutant and TAP emissions rates must be equal to or greater than the facility's potential emissions calculated in the PTC emissions inventory or proposed permit allowable emission rates. Emission calculations are described in more detail in Attachment 1.

3.1.1 Criteria Pollutant Emissions Rates and Modeling Applicability

Exclusion of BRC Sources from NAAQS Compliance Demonstration Requirements

A criteria pollutant-specific NAAQS compliance demonstration may not be required where facility-wide potential to emit (PTE) values for that criteria pollutant would qualify for a BRC permit exemption as per

Idaho Air Rules Section 221 (equal to 10 percent of the emissions defined as significant) if it were not for potential emissions of other criteria pollutants or TAPs. DEQ's regulatory interpretation policy of exemption provisions of Idaho Air Rules is that: "A DEQ NAAQS compliance assertion will not be made by the DEQ modeling group for specific criteria pollutants having a project emissions increase below BRC levels, provided the proposed project would have qualified for a Category I Exemption for BRC emissions quantities except for the emissions of another criteria pollutant.[1]" The interpretation policy also states that the exemption criteria of uncontrolled PTE not to exceed 100 ton/year (Idaho Air Rules Section 220.01.a.i) is not applicable when evaluating whether a NAAQS impact analyses is required. A permit will be issued limiting PTE below 100 ton/year, thereby negating the need to maintain calculated uncontrolled PTE under 100 ton/year.

The DEQ emission inventory shows that facility-wide controlled PTE emissions of certain criteria pollutants are above BRC levels, as listed in Table 3. The only emissions considered in this calculation are non-fugitive emissions from the HMA plant, including: the drum dryer, asphalt tank heater, IC engines, and asphalt silo filling. Emissions from material handling of aggregate and asphalt are considered fugitive, and as such were excluded from permit-applicability PTE.

Table 3. CRITERIA POLLUTANT NAAQS COMPLIANCE DEMONSTRATION APPLICABILITY

Criteria Pollutant	BRC Level (ton/year)	Applicable Facility Wide PTE Emissions (ton/year)	Air Impact Analyses Required?
PM_{10}[a]	1.5	1.13	No
$PM_{2.5}$[b]	1.0	0.85	No
Carbon Monoxide (CO)	10.0	6.1	No
Sulfur Dioxide (SO_2)	4.0	0.55	No
Nitrogen Oxides (NOx)	4.0	13.2	Yes
Lead (Pb)	0.06	0.00008	No
Ozone (as VOC)	4.0	1.2	No

a. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
b. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.

Table 4 lists criteria pollutant emission rates used in the DEQ site-specific air impact modeling analyses for the requested operational scenario of the HMA plant. Attachment 1 provides additional details of DEQ emission calculations used in the air impact modeling analyses.

Table 4. HMA PLANT EMISSIONS USED IN DEQ ANALYSES

Emissions Point in Model	Pollutant	Averaging Period	Emissions Rate (lb/hr)[a]
DRYER – asphalt drum dryer/mixer - emissions controlled by a venturi scrubber	NOx	1-hour	9.75
		Annual	0.200[b]
HEATER – diesel-fired oil tank heater	NOx	1-hour	0.517
		Annual	0.236[b]
SILOFILL – filling of asphalt silo	NOx	1-hour	0.0
		Annual	0.0
SILOLOAD – loadout from asphalt silo	NOx	1-hour	0.0
		Annual	0.0
ENG1 – 896 hp engine, non-Tier certified, 1,000 hour/year	NOx	1-hour	20.1
		Annual	2.29[b]
ENG2 – 40 hp engine, non-Tier certified, 2,000 hour/year	NOx	1-hour	1.24
		Annual	0.282[b]

a. Pounds per hour emission rate used in impact modeling analyses for specified averaging periods.

b. Emissions rate is equal to annual emissions divided over 8,760 hours/year.

Exclusion from Impact Analyses by Modeling Thresholds

DEQ may determine that reasonably expected impacts from specific criteria pollutant emissions, for those pollutants not excluded from analysis by DEQ's regulatory interpretation policy of exemption provisions (discussed above), are so minimal that NAAQS compliance is assured without the need to perform a project-specific impact analysis. DEQ's modeling applicability threshold emission values establish a level below which NAAQS compliance is effectively assured. These thresholds are presented in the *Idaho Air Quality Modeling Guideline*[2] (https://www.deq.idaho.gov/permits/air-quality-permitting). DEQ has recently revised modeling applicability thresholds[3] and will be updating the *Idaho Air Quality Modeling Guideline*. The revisions established facility-wide thresholds based on 1/4 of regulatory Significant Emission Rates (SER), defined in Idaho Air Rules for NAAQS with annual averaging periods and (1/4)(SER)/8,760, expressed as pound/hour, for NAAQS with shorter averaging periods. DEQ also revised SIL thresholds that can be used for either new facilities or facility modification projects.

Total project emissions are provided in Table 5 along with Modeling Applicability Thresholds. Emissions from co-contributing sources are not included in project modeling applicability.

Table 5. EMISSION COMPARISONS TO MODELING THRESHOLDS

Pollutant / Averaging Period	Emission Rate[a]	SIL Threshold[b]	Facility-Wide Modeling Threshold[c]	Project-Specific Air Impact Analyses Required
NOx[d] 1-hour	31.6 lb/hr	0.38 lb/hr	2.3 lb/hr	Yes
NOx annual	3.01 ton/yr	1.9 ton/yr	10.0 ton/yr	No

a. Emission rate in either pounds/hour (lb/hr) or ton/year (ton/yr) over the specified time interval.
b. Revised modeling applicability thresholds[3]. Threshold based on the emission not causing an impact that exceeds the applicable SIL.
c. Revised modeling applicability thresholds[3]. Threshold based on 1/4 SER for annual NAAQS or (1/4)(SER/8,760) for shorter averaging-period NAAQS.
d. Nitrogen oxides.

3.1.2 Toxic Air Pollutant Emissions Rates

TAP emissions regulations under Idaho Air Rules Section 220 are only applicable for new or modified sources constructed after July 1, 1995. Table 6 lists emission rates used in the TAP impact analyses performed for those TAPs with potential emissions exceeding the TAP-specific ELs. Polyaromatic hydrocarbons (PAHs) are regulated by DEQ on an individual compound basis rather than a collective impact of all PAH compounds.

TAP emission factors were not available for a drum dryer controlled by a venturi scrubber. Emission factors were available for a drum dryer by a baghouse. The DEQ permit writer conservatively calculated particulate TAP emission factors from emission factors for a baghouse by multiplying the baghouse factor by a ratio of the controlled emission fraction (equal to 1 - control efficiency) for a venturi scrubber to that of a baghouse. With a conservatively high estimated control efficiency of 99.7 percent for baghouse control and conservatively low estimated control efficiency of 70 percent for venturi scrubber control, the adjustment factor is (1-0.70)/(1-0.997) = 100. By adjusting the baghouse particulate TAP emission factor by 100, most of the resulting emission factors, intended to represent control by a scrubber, exceeded the factor for uncontrolled emissions. Although this approach is clearly conservative, it results in impacts that exceed applicable AACCs for particulate TAPs.

Table 6. TAP EMISSIONS USED IN DEQ ANALYSES					
TAP	**Averaging Period[a]**	**Emissions (lb/hr)[b]**			
		DRYER[c]	**HEATER[d]**	**SILOFILL[e]**	**SILOLOAD[f]**
Benzene	Annual	2.00E-3		2.00E-5	1..11E-5
Formaldehyde	Annual	1.59E-2	1.72E-5	4.32E-4	1.88E-5
POM[g]	Annual	2.81E-6	4.92E-7	3.47E-6	2.36E-6
Arsenic	Annual	8.63E-5	6.49E-6		
Cadmium	Annual	6.32E-5	1.96E-6		
Chromium 6+	Annual	6.94E-5	1.22E-6		
Nickle	Annual	9.71E-3	4.15E-4		
phosphorus	24-hour	7.00E-2	1.02E-4		
PAH compounds[h]					
Naphthalene	Annual	4.62E-4	8.36E-5	2.37E-5	2.19E-5
2-Methylnaphthalene	Annual	3.80E-4		6.87E-5	4.17E-5
Phenanthrene	Annual	3.90E-5	2.41E-5	2.35E-5	1.42E-5

a. Maximum annual emissions are used for carcinogenic TAPs listed in Idaho Air Rules Section 586, and maximum 24-hour emissions are used for noncarcinogenic TAPs listed in Idaho Air Rules Section 585.
b. Maximum emissions for the averaging period of the TAP increment, expressed as pounds/hour. Pound/hour rates for annual averages were calculated by dividing the annual emissions by 8,760 hour/year of operation. Pound/hour rates for 24-hour averages were calculated by dividing the 24-hour emissions by 24 hour/day of operation.
c. Drum dryer.
d. Asphalt tank heater.
e. Loading of asphalt storage silo.
f. Asphalt loadout from storage silo.
g. Polycyclic Organic Matter consisting of a group of seven polyaromatic hydrocarbons (PAHs) as listed in Idaho Air Rules Section 586.
h. Polyaromatic hydrocarbons. PAHs are regulated on an individual PAH basis with the impact of each separate PAH compared to the PAH EL or AACC.

A less conservative revised adjustment factor was calculated by assuming a 99 percent control for a baghouse and keeping the conservatively low venturi scrubber efficiency of 70 percent. This generated a factor of (1-0.70)/(1-0.99) = 30. This adjustment factor was only applied to particulate TAPs that would be controlled by a baghouse. Gaseous and semivolatile TAP emissions from baghouse control and venturi scrubber control were assumed to identical. Applicable facility-wide TAP emissions, using the adjustment factor for particulate TAPs from the venturi scrubber-controlled dryer, exceeded ELs for the following particulate TAPs: arsenic, cadmium, chromium 6+, nickel, and phosphorus. Using the standard gaseous and semivolatile TAP emission factors for baghouse control (assuming negligible control and assuming the same for venturi scrubber control), the following ELs were exceeded: benzene, formaldehyde, POM, 2-methylnaphthalene (as a PAH), naphthalene (as a PAH), phenanthrene (as a PAH).

The HMA will operate on a seasonal basis, with no operations between December 1 and March 31. The modeling analyses were setup to account for this. To reflect the allowable annual throughput, the hourly rate put into the model was annual emissions divided by 5,856 hours (total hours for April through November operation). This rate is obtained by multiplying emissions in Table 6 by a ratio of 8,760/5,856.

3.1.3 Emissions Release Parameters

Table 7 provides emission release parameters for the HMA plant used in the analyses, including stack height, stack diameter, exhaust temperature, and exhaust velocity. Additional details are provided in Attachment 1.

Table 7. HMA PLANT EMISSION RELEASE PARAMETERS						
Release Point /Location	**Source Type**	**UTM Coordinates of Release Point (m)[a]**	**Stack Height (m)[a]**	**Modeled Diameter (m)[a]**	**Stack Gas Temp. (K)[b]**	**Stack Gas Flow Velocity (m/sec)[c]**
DRYER	Point	494887 E, 4840828 N	7.3 (24.0 ft)	1.21 (4.0 ft)	339 (150 °F)	22.7 (74 fps)
HEATER	Point	494885 E, 4840813 N	4.0 (13.0 ft)	0.30 (1.0 ft)	422 (300 °F)	1.3 (4.2 fps)
SILOFILL	Point	494898 E, 4840819 N	9.0 (29.5 ft)	3.0 (9.8 ft)	346 (163 °F)	0.1 (0.3 fps)
SILOLOAD	Point	494898 E, 4840819 N	3.5 (11.5 ft)	3.0 (9.8 ft)	346 (163 °F)	0.1 (0.3 fps)
ENG1	Point	494870 E, 4840835 N	4.0 (13.2 ft)	0.27 (0.88 ft)	1000 (1340 °F)	44.6 (146 fps)
ENG2	Point	494869 E, 4840837 N	1.8 (6.0 ft)	0.08 (0.25 ft)	811 (1000 °F)	41.3 (136 fps)

a. Meters. Values in parentheses are in feet.
b. Kelvin. Values in parentheses are in degrees Fahrenheit.
c. Meters per second. Values in parentheses are in feet/second.

Adequate documentation of IC engine release parameters was not submitted with the application. DEQ used methods for estimating IC engine release parameters that were presented in the Washington State Department of Ecology's *Suitability of Diesel-Powered Emergency Generators for Air Quality General Order of Approval: Evaluation of Control Technology, Ambient Impacts, and Potential Approval Criteria*.[4] Calculation of the these release parameters are provided in Attachment 1.

3.2 Background Concentrations

Background concentrations are used if a cumulative NAAQS impact analysis is needed to demonstrate compliance with applicable NAAQS. A background concentration tool was used to establish ambient air background concentrations for this project. The design value background concentration tool is accessed from the Northwest International Air Quality Environmental Science and Technology Consortium (NW AIRQUEST: https://arcg.is/1jXmHH) using the location-specific coordinates. These background air pollutant levels are based on regional-scale air impact modeling of criteria pollutants in Washington, Oregon, and Idaho. The modeling was performed for years 2014-2017 using updated air pollutant emissions inventories. Modeled background values were adjusted by the tool according to available ambient monitoring data and improved interpolation techniques.

DEQ used the background concentration tool to determine the 1-hour NO_2 design value concentration at the Driggs site, as shown in Table 8. Background concentrations for other criteria pollutants were not obtained since air impact modeling was not required for those pollutants.

Table 8. AMBIENT BACKGROUND CONCENTRATIONS AT THE SUNROC HMA FACILITY.		
Pollutant	**Averaging Period**	**Background Concentration ($\mu g/m^3$)[a,b]**
NO_2[c]	1-hour	14.3 (7.6 ppb[d])

a. Micrograms per cubic meter, except where noted otherwise.
b. NW AIRQUEST ambient background lookup tool, 2014-2017.
c. Nitrogen dioxide.
d. Parts per billion by volume.

3.3 Impact Modeling Methodology

This section describes the modeling methods used by DEQ to demonstrate preconstruction compliance with applicable air quality standards.

3.3.1 General Overview of Analyses

DEQ calculated the site-specific air pollutant emissions inventory and performed air impact analyses based on information submitted from Avail Valley and general knowledge of HMA plants. The submitted information/analyses, in combination with results from DEQ's air impact analyses, demonstrate compliance with applicable air quality standards to DEQ's satisfaction, provided the facility is operated as described in the submitted application and in this memorandum.

The site-specific operational scenario for the Sunroc HMA plant is for operation at the Driggs site for an indefinite period. Therefore, site-specific data/characteristics were used in air impact analyses, including meteorological data, site layout, and terrain.

Table 9 provides a brief description of parameters used in the modeling analyses.

Table 9. MODELING PARAMETERS

Parameter	Description/Values	Documentation/Addition Description
General Location	East of Driggs	These analyses are only applicable for operation at the Driggs site.
Model	AERMOD	AERMOD with the PRIME downwash algorithm, version 19191.
Meteorological Data	Rexburg surface and Boise upper air data	See Section 3.3.5 of this memorandum for additional details of the meteorological data.
Terrain	Considered	National Elevation Dataset (NED) was acquired from the USGS for the surrounding area. AERMAP version 18081 was used to process terrain elevation data for all buildings and receptors. See Section 3.3.6 for more details.
Building Downwash	Considered	BPIP-PRIME was used to evaluate building/structure dimensions for consideration of downwash effects in AERMOD.
NOx chemistry	ARM2	NO to NO_2 conversion was addressed using the ARM2 method with default NO_2/NOx ratios (see Section 3.3.4).
Receptor Grid	5,090 receptors	Adequate to resolve maximum modeled impacts: 10-meter spacing out to 100 meters 25-meter spacing out to 200 meters 50-meter spacing out to 500 meters 100-meter spacing out to 1,000 meters 250-meter spacing out to 5,000 meters

3.3.2 Modeling protocol and Methodology

A modeling protocol was not submitted to DEQ prior to the application because DEQ performed the required air impact modeling analyses. Site-specific modeling was generally conducted using data and methods described in the *State of Idaho Air Quality Modeling Guideline*.[2]

3.3.3 Model Selection

Idaho Air Rules Section 202.02 requires that estimates of ambient concentrations be based on air quality models specified in 40 CFR 51, Appendix W (Guideline on Air Quality Models). The refined, steady state, multiple source, Gaussian dispersion model AERMOD was promulgated as the replacement model for ISCST3 in December 2005. AERMOD retains the single straight-line trajectory of ISCST3, but includes more advanced algorithms to assess turbulent mixing processes in the planetary boundary layer for both convective and stable stratified layers.

AERMOD version 19191 was used for the modeling analyses to evaluate impacts of the facility. This version was the current version at the time the application was received by DEQ.

3.3.4 Data and Parameters used for Modeling 1-Hour NO_2 with ARM2

The atmospheric chemistry of NO, NO_2, and O_3 complicates accurate prediction of NO_2 impacts resulting from NOx emissions. The conversion of NO to NO_2 can be conservatively addressed using several methods as outlined in a *2014 EPA NO_2 Modeling Clarification Memorandum*.[5] The guidance outlines a three-tiered approach:

- Tier 1 – assume full conversion of NO to NO_2 where total NOx emissions are modeled and modeled impacts are assumed to be 100 percent NO_2.
- Tier 2 – use an ambient ratio to adjust impacts from the Tier 1 analysis.
- Tier 3 – use a detailed screening method to account for $NO/NO_2/O_3$ chemistry such as the Ozone Limiting Method (OLM) or the Plume Volume Molar Ratio Method (PVMRM).

DEQ used the Ambient Ratio Method 2 (ARM2) method, a Tier 2 analysis method which assumes an ambient equilibrium between NO and NO_2, in which the conversion of NO to NO_2 is predicted using hourly ambient NOx monitoring data. ARM2 has been adopted by the EPA as a default regulatory Tier 2 option. A minimum and maximum NO_2/NOx ratio of 0.5 and 0.9, respectively, were specified in the model.

3.3.5 Meteorological Data

DEQ processed a meteorological dataset from Rexburg, Idaho (KRXE; station ID 726818-94194) covering the years 2014-2018. The upper air soundings required by AERMET were obtained from the Boise airport station (site ID 24131). Surface characteristics were determined by DEQ staff using AERSURFACE version 13016. DEQ modeling staff evaluated annual moisture conditions for the AERSURFACE runs based on thirty years of Rexburg airport precipitation data. Conditions were determined to be "wet" for 2014, 2016, and 2018, and "average" for 2015 and 2017. Average moisture content is defined as within a 30 percentile of the 30-year mean of 11.2 inches.

Figure 1 shows a wind rose and Figure 2 shows a wind speed histogram at Rexburg Airport. On average, winds are dominated by southwesterlies and northerlies with magnitudes of between 0.5 and 8.8 meters/second. Calms were relatively low at less than 1.0 percent, and less than 1.0 percent of the data were missing from the five-year record.

AERMINUTE version 15271 was used to process Automated Surface Observing Systems (ASOS) wind data for use in AERMET. AERMET version 19191 was used to process surface and upper air data and to generate a model-ready meteorological data input file. The "adjust u star" (ADJ_U*) option was applied in AERMET to enhance model performance during low wind speeds under stable conditions. The modeling analyses used the met data set processed with the U* option.

3.3.6 Effects of Terrain on Modeled Impacts

DEQ's ambient air impact analyses used terrain data extracted from United States Geological Survey (USGS) National Elevation Dataset (NED) files.

The terrain preprocessor AERMAP version 18081 was used to extract the elevations from the NED files and assign them to receptors in the modeling domain in a format usable by AERMOD. AERMAP also

determined the hill-height scale for each receptor. The hill-height scale is an elevation value based on the surrounding terrain which has the greatest effect on that individual receptor. AERMOD uses those heights to evaluate whether the emission plume has sufficient energy to travel up and over the terrain or if the plume will travel around the terrain. Figure 3 depicts the full 10-km receptor grid used in the analyses, overlaid on a terrain image from Google Earth.

Figure 1. WIND ROSE AT REXBURG AIRPORT IN IDAHO (2014-2018).

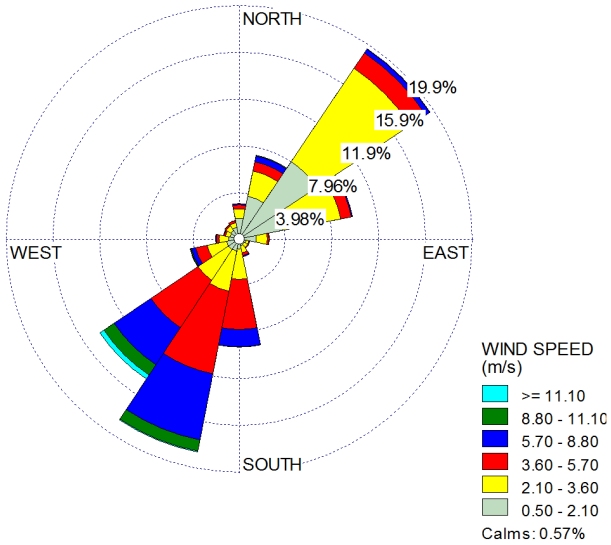


Figure 2. WIND SPEED HISTOGRAM AT REXBURG AIRPORT IN IDAHO (2014-2018).

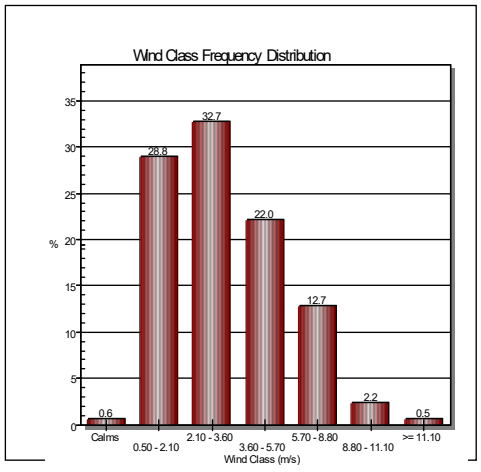
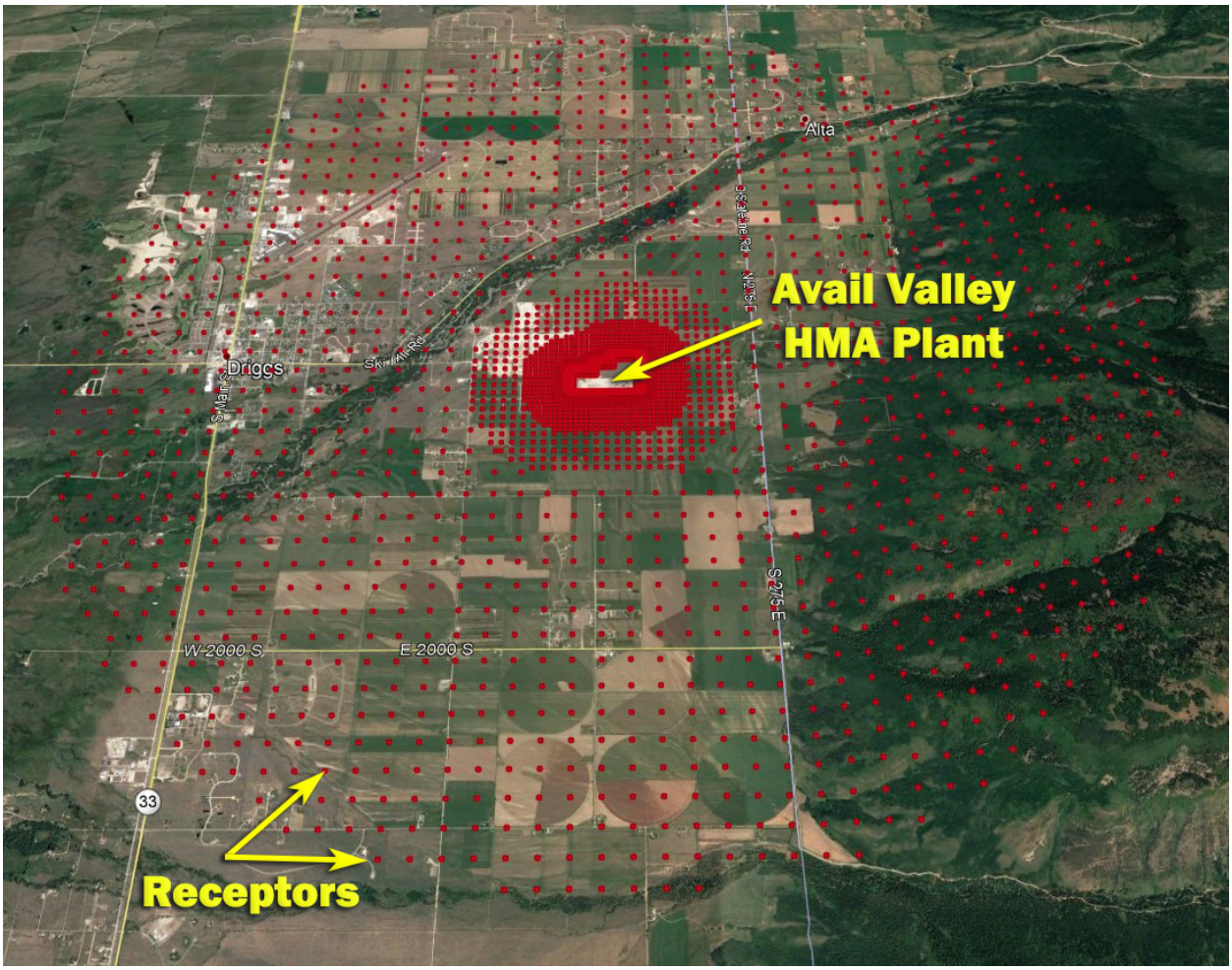


Figure 3. FACILITY LOCATION AND MODELING DOMAIN



3.3.7 Facility Layout

Avail Valley provided an aerial photograph with the application showing the site location and boundary of the facility. DEQ used this information and aerial photographs from Google Earth to generate coordinates for emission points as input to the air impact model. Figure 4 shows the placement of structures and emission points used in the model.

3.3.8 Effects of Building Downwash on Modeled Impacts

The main engine housing and a "control shack" were included in the air impact analyses. Building dimensions were based on information submitted with the application, correspondence with facility representatives, and Google Earth aerial photographs. Table 10 lists the buildings used in the air impact modeling analyses. No other substantial structures were identified in the application. Downwash effects from equipment or other minor structures at the site were not accounted for because much of the equipment is porous to wind, thereby minimizing downwash effects.

Figure 4. STRUCTURE AND EMISSION POINT CONFIGURATION AT THE DRIGGS SITE



Tables 4, 6, and 7 provide a description of modeled emission points indicated in this figure and emission quantities of criteria pollutants and TAPs.

Table 10. BUILDING DIMENSIONS USED IN AIR IMPACT MODELING		
Building ID and description	**Horizontal Dimensions (meters)**	**Building Height (meters)**
shack – HMA control building	6.0 X 4.0	3.4
Gen – generator housing	14.5 X 2.5	4.0

3.3.9 Ambient Air Boundary

Ambient air is defined in Section 006 of the Idaho Air Rules as "that portion of the atmosphere, external to buildings, to which the general public has access." Ambient air is typically considered as areas external to the identified property boundary where the facility is located, assuming that reasonable measures will be taken to preclude public access.

The submitted application provided a facility plot plan with the ambient air boundary identified. The identified ambient air boundary appeared reasonable, based on an overlay on a Google Earth image of the site. DEQ assumes that Avail Valley will take reasonable measures to preclude public access to the site.

3.3.10 Receptor Network

Table 9 describes the receptor network used in the air impact modeling analyses. The full grid, along

with the ambient air boundary receptors, includes a total of 5,090 receptors (Figure 3). The receptor grid used in the impact modeling analyses met the minimum recommendations specified in the *Idaho Air Quality Modeling Guideline*[2], providing good resolution of the maximum design concentrations for the project and extensive coverage. The full receptor grid was used for the NAAQS and TAPs ambient air impact analyses.

DEQ determined that the receptor network was effective in reasonably assuring compliance with applicable air quality standards at all ambient air locations.

3.3.11 Crucial HMA Plant Characteristics Affecting Air Quality Impacts

Table 11 lists characteristics of the HMA plant that are critical to the NAAQS and TAPs compliance demonstrations.

Table 11. IMPORTANT CHARACTERISTIC OF HMA PLANT USED IN DEQ ANALYSES

Parameter	Value or Description
Scope of Analyses	This modification only applies to operations at the Driggs site.
HMA Production Rate	250 ton/hour, 2,000 ton/day, 45,000 ton/year
Co-Contributing Sources	Impact analyses assumed no co-contributing sources at the site. If there is a rock crushing plant on the site, and it will be considered co-contributing when it is located within 1,000 feet of the drum dryer stack. It was assumed that the HMA plant will not operate simultaneously with the crushing plant. Other permitted plants will not be brought onto the permittee's site within 1,000 ft of the HMA plant.
Drum Dryer	Drum dryer fueled by LPG or propane with a venturi scrubber for emissions control.
Dryer Stack Parameters	stack height ≥24 ft, stack diameter ≈4.0 ft (effective diameter), gas temp ≥ 150° F, flow velocity ≥22 ft/sec.
Asphalt Silo Filling	Emissions are not controlled from this source.
Portability	The HMA plant was modeled as permanent source at the Driggs location.
Seasonal Restriction	No operations from December 1 through March 31.

4.0 Impact Modeling Results

This section provides results for air impact analyses used to demonstrate compliance with applicable criteria pollutants and TAPs.

4.1 Results for Cumulative NAAQS Analyses

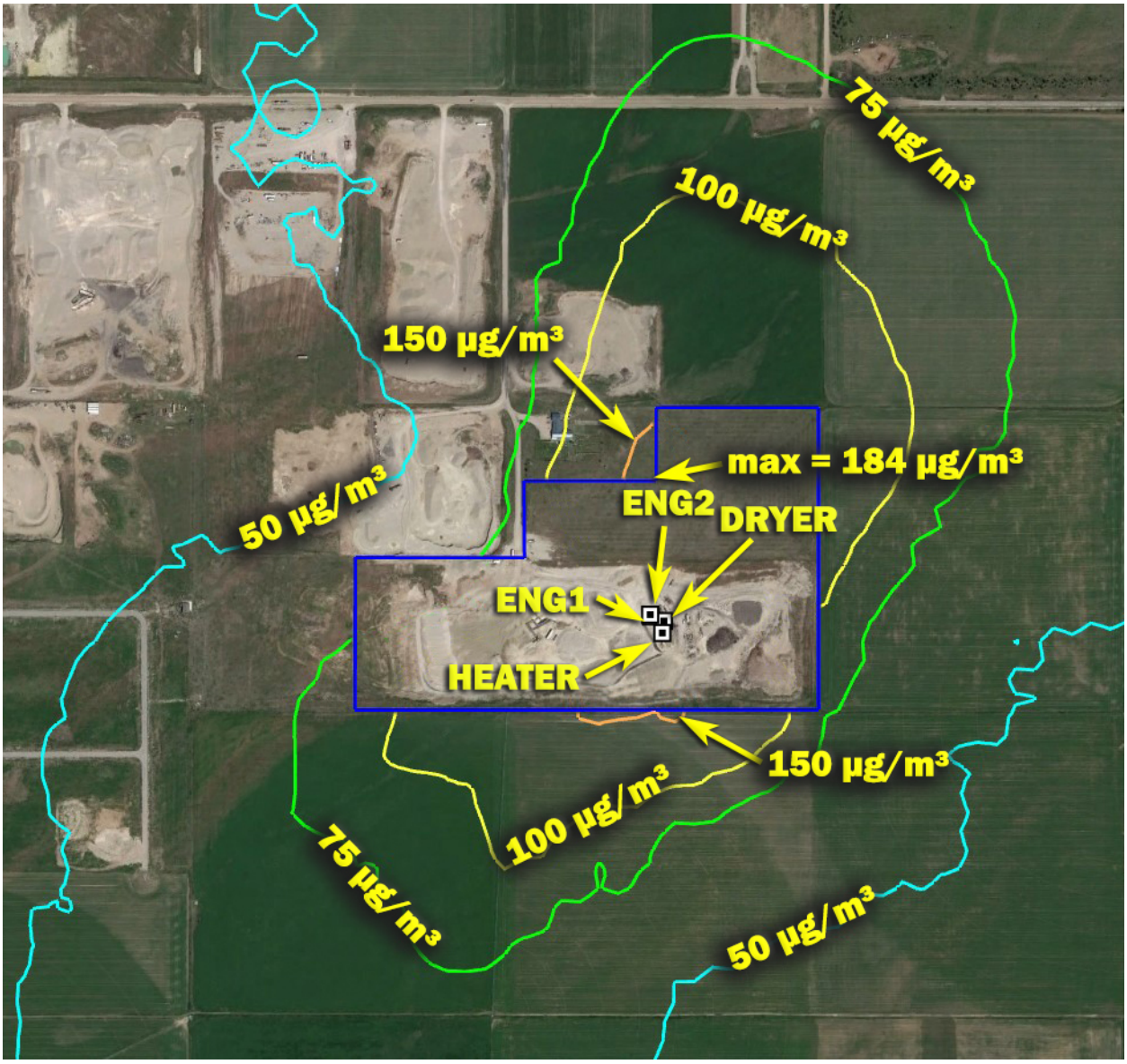
A NAAQS compliance demonstration was required for 1-hour and annual NO_2. NAAQS compliance demonstrations for other criteria pollutants were not required for permit issuance because allowable non-fugitive emissions are below BRC thresholds. Site-specific air impact analyses were not required for annual NO_2 because emissions were below DEQ established modeling applicability thresholds. Table 12 provides results for the cumulative NAAQS impact analysis. Total impacts were calculated by adding the design value of the modeled impact to the ambient background value. The sum was then compared to the NAAQS. Ambient impacts for the facility, when combined with appropriate ambient backgrounds, were below the NAAQS at all modeled receptors.

Figure 5 provides 1-hour NO_2 design value concentration contours, including the 14.3 $\mu g/m^3$ background concentration. As shown in the figure, impacts decrease quickly to near background levels a short distance from the facility boundary.

Table 12. RESULTS FOR CUMULATIVE NAAQS IMPACT ANALYSES						
Pollutant	**Averaging Period**	**Modeled Design Value Concentration ($\mu g/m^3$)[a]**	**Background Concentration ($\mu g/m^3$)**	**Total Ambient Impact ($\mu g/m^3$)**	**NAAQS[b] ($\mu g/m^3$)**	**Percent of NAAQS**
NO_2[c]	1-hour	169.5	14.3	183.8	188	98

a. Micrograms per cubic meter.
b. National Ambient Air Quality Standard.
c. Nitrogen dioxide.

Figure 5. 1-HOUR NO_2 MODELED IMPACT CONTOURS WITH BACKGROUND



4.2 Results for TAPs Impact Analyses

Dispersion modeling was required to demonstrate compliance with TAP increments listed in Idaho Air Rules Section 585 and 586 for those TAPs with project-wide emission increases exceeding ELs. Table 13 lists the maximum modeled impacts for specific TAPs. All modeled impacts are below applicable AACs and AACCs except for nickel. Maximum nickel impacts were 6.71 E-3 µg/m^3 and the AACC is 4.2 E-3 µg/m^3. The DEQ permit writer evaluated whether emissions from the venturi scrubber-controlled drum dryer and the diesel-fired tank heater could be considered as T-RACT for nickel. The conclusion was that emission limits proposed for both sources represent T-RACT for nickel. Therefore, the allowable ambient air impact for nickel is 10 times the AACC, which represents a 1-in-100,000 lifetime cancer risk. Figure 6 shows concentration contours of nickel, with the maximum impact along the ambient air boundary directly south of the dryer and heater.

Table 13. TAP AIR IMPACT ANALYSIS RESULTS

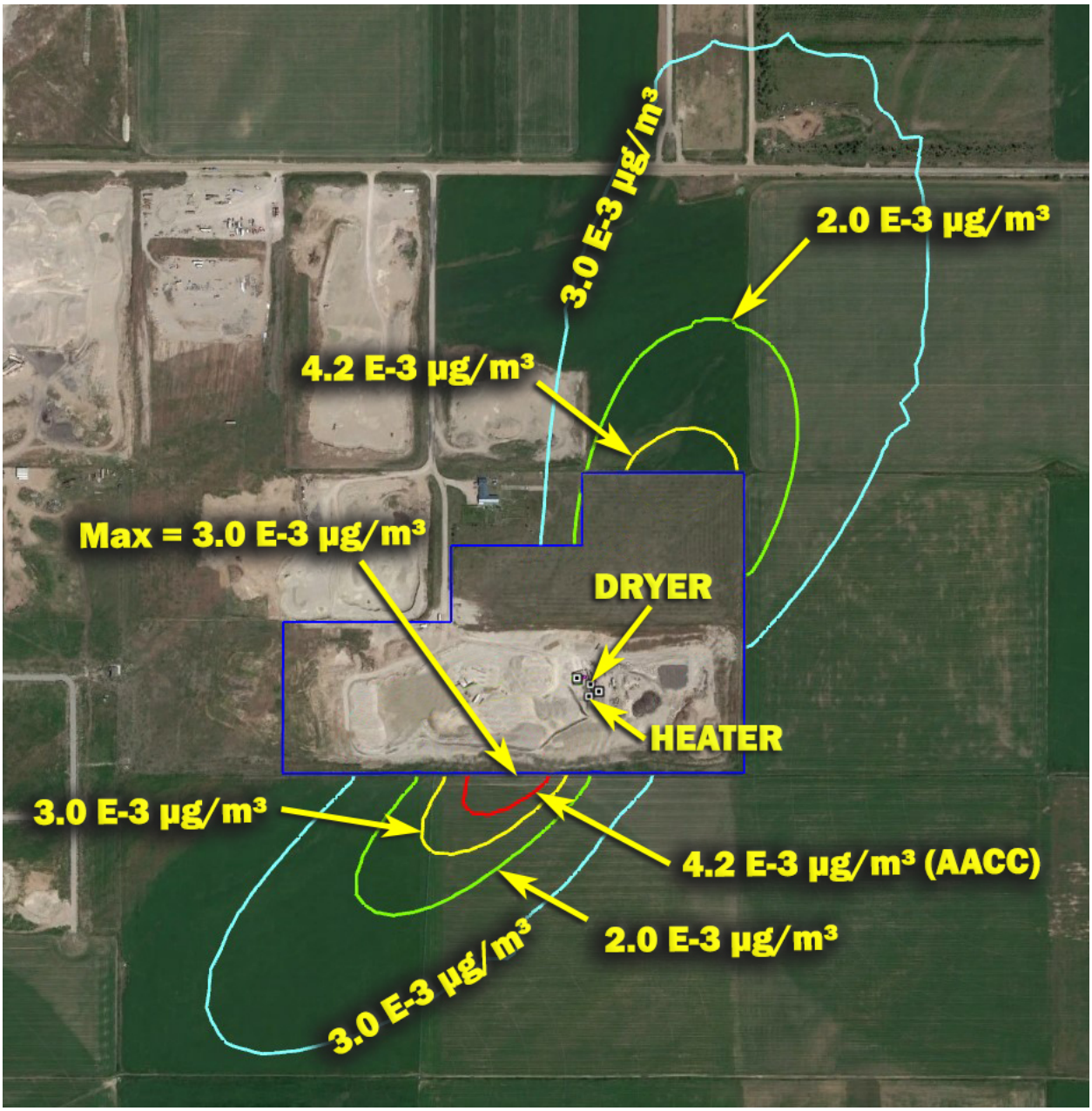
TAP	Averaging Period[a]	Maximum Modeled Impact (µg/m^3)[b,c]	AACC/ AAC[d] (µg/m^3)	Percent of AACC
Benzene	5-year	6.76 E-4	1.2 E-1	0.6
Formaldehyde	5-year	6.71 E-3	7.7 E-2	8
Polycyclic Organic Matter (POM)	5-year	6.88 E-5	3.0 E-4	23
Arsenic	5-year	9.89 E-5	2.3 E-4	43
Cadmium	5-year	3.21 E-5	5.6 E-4	6
Chromium 6+	5-year	2.35 E-5	8.3 E-5	28
Nickle	5-year	6.71 E-3[e]	4.2 E-3[e]	160
Phosphorus	24-hour	2.38 E-1	5	5
Polyaromatic Hydrocarbon (PAH) Compounds:	5-year		1.4 E-2	
Naphthalene	5-year	1.69 E-3	1.4 E-2	14
2-Methylnaphthalene	5-year	1.21 E-3	1.4 E-2	10
Phenanthrene	5-year	7.41 E-4	1.4 E-2	6
Pyrene	5-year	9.21 E-5	1.4 E-2	0.8

a. Non-carcinogenic TAPs are regulated on a 24-hour basis and carcinogenic TAPs are regulated on an annual basis, with DEQ using the average over the entire period of the meteorological data file.
b. Micrograms per cubic meter.
c. Modeled impact for carcinogenic TAPs represent a period-average (5 years) concentration and modeled impacts for non-carcinogenic TAPs represent the maximum 24-hour average.
d. Acceptable Ambient Concentration for non-carcinogenic TAPs and Acceptable Ambient Concentration of Carcinogens for carcinogenic TAPs.
e. DEQ determined T-RACT was used. Therefore, impacts of 10 times the AACC are allowable.

4.3 Locating with Other Facilities/Equipment

The air impact analyses performed by DEQ for the Avail Valley HMA plant assumed that no other permitted sources will locate on the site, except for a rock crushing plant as described below. DEQ modeling staff established a rule-of-thumb distance of 1,000 feet from emissions sources at the HMA plant where emissions from a nearby source/facility would need to be considered in the air impact modeling analyses for the HMA plant. Emissions sources located beyond 1,000 feet are considered too distant to have a measurable impact on receptors substantially impacted by the HMA plant.

Figure 6. NICKEL MODELED IMPACT CONTOURS



HMA plants commonly operate with rock crushing plants at a given site. Since the short-term impacts are the governing criteria, simultaneous operation on an annual basis is not a large concern. Co-contributing sources of PM_{10} and $PM_{2.5}$ from a rock crushing plant is usually the critical concern. Since a NAAQS compliance demonstration was not required for this Avail Valley HMA plant permitting project, a co-contributing source is only important if it emits NO_2 (such as from a large IC engine powering a generator). DEQ air modeling staff determined NAAQS compliance is still confidently assured when a rock crushing plant locates within 1,000 feet of the HMA plant, provided the HMA plant does not operate simultaneously with the rock crushing plant.

The 1,000-foot co-contributing source restriction does not apply to sources that may operate outside of the property controlled by Avail Valley, since they have no control over other facilities locating on neighboring properties. Cumulative impacts would be assessed in the permitting analyses performed for the neighboring facility.

5.0 Conclusions

The ambient air impact analyses and other air quality analyses performed in support of the PTC application demonstrated to DEQ's satisfaction that emissions from the Avail Valley HMA plant as described in this memorandum will not cause or significantly contribute to a violation of any ambient air quality standard.

References

1. *Policy on NAAQS Compliance Demonstration Requirements.* Idaho Department of Environmental Quality Policy Memorandum. July 11, 2014.

2. *State of Idaho Guideline for Performing Air Quality Impact Analyses.* Idaho Department of Environmental Quality. September 2013. State of Idaho DEQ Air Doc. ID AQ-011. Available at http://www.deq.idaho.gov/media/1029/modeling-guideline.pdf.

3. *Justification of Revised Modeling Thresholds*. Idaho Department of Environmental Quality. Memorandum from Kevin Schilling, Air Quality Dispersion Modeling Supervisor, to Michael Simon, Stationary Source Bureau Chief. January 14, 2020.

4. *Suitability of Diesel-Powered Emergency Generators for Air Quality General Order of Approval: Evaluation of Control Technology, Ambient Impacts, and Potential Approval Criteria*. Washington State Department of Ecology. June 23, 2006

5. *Clarification on the Use of AERMOD Dispersion Modeling for Demonstrating Compliance with the NO_2 National Ambient Air Quality Standard.* U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Air Quality Modeling Group. Memorandum from R. Chris Owen and Roger Brode, to Regional Dispersion Modeling Contacts. September 30, 2014.

6. *User's Guide for the AMS/EPA Regulatory Model – AERMOD*. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Emissions Monitoring and Analysis Division. EPA-454/B-03-001. September 2004. (Section 3.3.2.2).

ATTACHMENT 1

EMISSIONS CALCULATIONS AND MODELING PARAMETERS FOR

DEQ'S AIR IMPACT ANALYSES

HMA Plant Modeled Emissions Rates

Compliance determination is linked to throughput levels and the equipment configuration at the site.

Emissions from Drum Dryer, Asphalt Loadout, and Asphalt Silo Filling

DEQ's HMA plant spreadsheet to calculate emissions rates for various averaging periods.

Aggregate Handling Emissions

Not calculated for modeling because a PM_{10} and $PM_{2.5}$ NAAQS compliance demonstration was not required. PM_{10} and $PM_{2.5}$ non-fugitive emissions were below levels identified as BRC.

Screening Emissions

Not calculated for modeling because a PM_{10} and $PM_{2.5}$ NAAQS compliance demonstration was not required. PM_{10} and $PM_{2.5}$ non-fugitive emissions were below levels identified as BRC.

HMA Plant Modeling Parameters

Dryer baghouse Stack

Release height = 7.3 meters; effective diameter of release area = 1.2 meters;
typical stack gas temperature = 339 K; typical flow velocity = 22.7 meters/second

Oil Tank Heater Stack

Release height = 4.0 meters; effective diameter of release area = 0.30 meters;
typical stack gas temperature = 422 K; typical flow velocity = 1.3 meters/second

Asphalt Silo Filling

DEQ modeled this source as a point source.
- release height of 9.0 meters
- stack diameter of 3.0 meters, corresponding to the approximate diameter of the silo.
- gas temperature was estimated at half the AP42 default asphalt temperature: 325° F / 2 = 163° F (346 K)
- stack velocity of 0.1 m/sec to account for convective air flow.

Asphalt Loadout

DEQ modeled this source as a point source.
- release height of 3.5 meters
- stack diameter of 3.0 meters, corresponding to the approximate diameter of the silo.
- gas temperature was estimated at half the AP42 default asphalt temperature: 325° F / 2 = 163° F (346 K)
- stack velocity of 0.1 m/sec to account for convective air flow.

Main IC Engine

The submitted application form indicated that the primary IC engine has a stack height of 4 feet, which seemed unrealistically short. Representatives of the facility later clarified that the stack height was actually the height above the engine housing, and the height from ground level was 13.2 feet (4.0 meters).

Stack gas temperatures and flow rates are often overestimated by permit applicants, likely because values reported by manufacturers are often based on values measured at the exhaust manifold rather than at the point of release to the atmosphere. Because of this, DEQ typically uses stack temperatures and flow rates based on the following formula from the State of Washington Department of Ecology (Washington State Department of Ecology. *Suitability of Diesel-Powered Emergency Generators for Air Quality General Order of Approval: Evaluation of Control Technology, Ambient Impacts, and Potential Approval Criteria*. June 23, 2006):

Flow = 0.284 m^3/(sec·100·hp)

The stack diameter was set such that the flow velocity was 44.6 meters/second (as per WA guidance).

Stack gas temperatures were established as a function of power rating of the engine, using a table in the WA guidance (Table 7 in the WA guidance).

The final point source parameters used in the impact analyses for the 896 bhp engine was as follows:

> stack height = 4.0 meters (13.2 feet); stack diameter = 0.269 meters (0.883 feet); stack gas temperature = 1,000K (1,340 ^oF); flow velocity = 44.6 meters/second (resulting in a volumetric flow of 5,371 acfm).

This compares well to submitted values in the application form of: stack diameter = 1.0 feet; stack temperature = 1,008 ^oF; volumetric flow = 4,983 acfm.

Secondary IC Engine

The submitted application form indicated that the secondary IC engine has a stack height of 6 feet, which seemed reasonable for the 40 bhp. Representatives of the facility later clarified that the stack height was the height from ground level.

Because the potential impact from this small engine is rather minimal, and because it will not likely be operating simultaneously with the primary engine, the stack release parameters listed in the application form were used in the air impact analyses without justification.

The point source parameters used in the impact analyses for the 40 bhp engine was as follows:

> stack height = 1.8 meters (6.0 feet); stack diameter = 0.076 meters (0.25 feet); stack gas temperature = 811 K (1,000 ^oF); flow velocity = 41.4 meters/second (resulting in a volumetric flow of 400 acfm).

APPENDIX C – T-RACT ANALYSIS

130 T/hr Drum Mixer - Scrubber T-RACT Cost Analysis

Cost Item	Multiplier	Cost
Direct Purchase Costs		
Venturi Packaged Unit, A1*		$100,000
Instrumentation, 0.1 x A	10.00%	$10,000
Sales tax, 0.06 x A	6.00%	$6,000
Freight, 0.05 x A	5.00%	$5,000
Purchased equipment cost "B"is the cost of the baghouse + instrumentation + sales tax + freight		**$121,000**
Direct Installation Costs		
Foundation and supports, 0.06 x B	6.00%	$7,260
Handling and erection, 0.40 x B	40.00%	$48,400
Electrical, 0.01 x B	1.00%	$1,210
Piping, 0.05 x B	5.00%	$6,050
Insulation for ductwork, 0.03 x B	3.00%	$3,630
Painting, 0.01 x B	1.00%	$1,210
Direct installation costs total		**$67,760**
Site preparation**		$0
Facilities and buildings**		$0
Total Direct Costs		**$188,760**
Indirect costs (installation)		
Engineering, 0.10 x B	10.00%	$12,100
Construction and field expenses, 0.10 x B	10.00%	$12,100
Contractor fees, 0.10 x B	10.00%	$12,100
Startup, 0.01 x B	1.00%	$1,210
Performance test, 0.01 x B	1.00%	$1,210
Contingencies, 0.03 x B	3.00%	$3,630
Total Indirect Cost		**$42,350**
Total Capital Investment (TCI) is Total Direct Costs + Total Indirect Costs		**$231,110**
Direct Annual Costs, DC		
Operating labor cost (assumption)	$35.00/hr	
Annual operation (assumption)	6,000 hrs/yr	
Operating labor cost (assumed to be 25% of annual operation, 2 hrs per 8 hr shift)	25.00%	$52,500
Supervisory labor cost (15% of operating labor)	15.00%	$7,875
Operating materials cost**		$0
Maintenance labor cost (assumed to be 18.75% of annual operation, 1-2 hr per 8 hr shift, thus an average of 1.5 hrs per 8 hr shift)	18.75%	$39,375
Maintenance material cost (assumed to be 100% of maintenance labor cost)	100.00%	$39,375
Liquor pump power rating	10.00 hp	
Auger pump power rating	3.00 hp	

Fan power rating	75.00 hp	
Conversion from horsepower to kW	0.7457	
Utilities price	0.07 $/kW-hr	
Utilities cost (electricity), annual operation x motor rating x electricty cost		$27,561
Total Direct Annual Costs		**$166,686**

Indirect Annual Costs

Overhead, 60% of the sum of operating, supvisory & maintenance labor and maintenance materials	60.00%	$83,475
Administrative charges, 2% of TCI	2.00%	$4,622
Property tax, 1% of TCI	1.00%	$2,311
Insurance, 1% of TCI	1.00%	$2,311
Capital recovery, 0.09439 x TCI	9.439%	$21,814
Total Indirect Annual Costs		**$114,534**

Total Annual Cost is Total Direct Annual Costs + Total Indirect Annual Costs **$281,220**

Annual Cost Per Ton of Pollutant Removed

Pollutant	Pounds per year of pollutant controlled by the scrubber (96% control)	Annual Cost to capture pollutant ($/lb)
Arsenic	1	**281,220 $/lb**
Cadmium	3	**93,740 $/lb**
Hexavalent Chromium	18	**15,623 $/lb**
Nickel	973	**289 $/lb**

*Reference:
EPA AIR POLLUTION CONTROL COST MANUAL
Sixth Edition - January 2002
EPA/452/B-02-001
United States Environmental Protection Agency
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

Section 6, Particulate Matter Controls, Chapter 2,
Wet Scrubbers for Particulate Matter
Table 2.8 and 2.9

**Section 2.3.5, Waste Liquid Collection and Disposal, states that due to the high variability of disposal costs, i.e. laboratory analysis, transportation costs, and the cost of treatment, destruction, landfill, or other disposal metod of the spent scrubber water, these costs are not included as part of annual costs in this document.

Vendor quotes from: CEI Enterprises, Inc., An Astec Company
CEI Proposal # 10-421
Dated October 2, 2010