Statement of Basis

Permit to Construct No. P-2013.0059
Project ID 61462

Alta Mesa Services, LP
New Plymouth, Idaho

Facility ID 075-00018

Final

February 5, 2015
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Permit Writer

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.

ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE

AAC	acceptable ambient concentrations
AACC	acceptable ambient concentrations for carcinogens
Bbl	barrel
Bhp	brake horsepower
BMP	best management practices
Btu	British thermal units
CAA	Clean Air Act
CEMS	continuous emission monitoring systems
CFR	Code of Federal Regulations
CI	compression ignition
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
HAP	hazardous air pollutants
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
lb/hr	pounds per hour
m	meters
MACT	Maximum Achievable Control Technology
MMBtu	million British thermal units
NAAQS	National Ambient Air Quality Standard
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
NSCR	non-selective catalytic reduction
NSPS	New Source Performance Standards
O&M	operation and maintenance
O_2	oxygen
PC	permit condition
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
ppm	parts per million
ppmw	parts per million by weight
PSD	Prevention of Significant Deterioration
PTC	permit to construct
PTC/T2	permit to construct and Tier II operating permit
PTE	potential to emit
RICE	reciprocating internal combustion engines
Rules	*Rules for the Control of Air Pollution in Idaho*
scf	standard cubic feet

SCL	significant contribution limits
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
T2	Tier II operating permit
TAP	toxic air pollutants
THC	total hydrocarbon
U.S.C.	United States Code
VOC	volatile organic compounds
VRU	vapor recovery unit
$\mu g/m^3$	micrograms per cubic meter

FACILITY INFORMATION

Description

Alta Mesa Services, LP (Alta Mesa) operates a natural gas and hydrocarbon treatment facility called the Idaho Refrigeration Plant located in New Plymouth. The facility processes raw natural gas and natural gas condensate for delivery to a nearby Williams Northwest natural gas transmission pipeline for transport to market.

Raw field gas enters the plant through a gathering line and ball receiver. Liquids are separated from the gas in the Slug Catcher, and level controlled through a level control valve where they are pressured to a storage tank. The gas vapor leaving passes through a pressure control valve which prevents the pressure from exceeding 575 psig. It next enters the Gas to Gas Exchanger where the gas is cooled to 17 F and then to the Gas Chiller, where the gas is further cooled to -20 F using propane refrigerant. The gas is separated from the condensed natural gas liquids in the Cold Separator, and then delivered to shell side of the Gas to Gas Exchanger and consequently warmed to 50 F. This gas is approximately 95% of the inlet gas and is compressed to pipeline pressure (maximum 850 psig) by a compressor. The compressor is driven by a natural gas powered Caterpillar G398 TA richburn engine equipped with an emit catalytic oxidizer. There is a 0.2 MMbtu Engine heater which is also natural gas fired which can be used to warm the engine prior to start-up. The gas then passes through a Filter/Separator to remove particles, oil mist, etc. prior to delivery to Northwest Pipeline.

Liquids from the cold separator flow to the Gas/Liquid Exchanger, where they are warmed to 31 F. The flow is level controlled by a level control valve prior to entering the Glycol Separator. The Glycol Separator is a three phase separator and separates gas, natural gas liquids NGL(s), and glycol. The NGL(s) enter the top of the 10 tray stabilizer and trickle down through the trays. The bottom section of the stabilizer diverts the NGL(s) to the Reboiler, where indirect heat warms the NGL(s) to 180 F. This reboiler (Stabilizer Reboiler Heater) is a 1.2 MMbtu natural gas fired unit which vaporizes the ethane and lighter components which travel from tray to tray up the tower warming the incoming NGL(s) and cooling the gas. The gas leaving the stabilizer is ethane rich and is recompressed back to the plant inlet.

The NGL is cooled in an air cooled heat exchanger, as it passes to the storage tank. All vapors are combined and recompressed to the plant inlet for recycling. The fourth throw of the refrigeration compressor is powered by a 250 hp electric motor.

Ethylene glycol is injected in the gas to gas exchanger and the chiller to inhibit hydrate formation as the inlet gas is cooled. The glycol travels through a series of exchangers and separators where it is separated by gravity from the NGL(s). Glycol exits the glycol separator and travels to a heat exchanger where it is warmed to 100 F by exchange with the hot glycol from the reboiler. This conserves energy and reduces viscosity for improved operation of the glycol filter. The glycol filter has a spun element and removes particles in the glycol 25 micron and larger. The filter is equipped with an air eliminator to remove vapor and maximize the filtration area.

The warm glycol then flows to the top of the packed section of the glycol reboiler where it acts as reflux for the steam generated in the reboiler to minimize glycol vaporization losses. The glycol is heated in two reboilers by a 0.75 MMbtu per hour direct natural gas fired tube. By operating the reboilers at 235 to 240 F the glycol will maintain a concentration in the 75% range.

Hot glycol from the reboiler accumulates in the surge tank end of the reboiler and then flows to the shell side of the glycol exchanger where it cools to ambient temperature for suction to the glycol pump. The glycol pump is an electric motor driven plunger type which can boost the glycol up to 1000 psig if necessary. Glycol leaving the pump flows to the injection nozzles which are each sized for 1 gpm a 50 psi differential pressure. The nozzles are inserted into the exchangers with removable holders. Operating under the proper conditions the glycol should be evenly distributed across the face of each tubesheet.

The refrigeration is provided in a typical propane/kettle type system. The compressor lowers the pressure of the kettle thereby lowering the temperature of the bath. Propane from the kettle is compressed to 240

psig by a two stage compressor which is equipped with normal operating and shutdown devices. Propane from compressor discharge is condensed with an aerial electric fan driven cooler. The cooler outlet liquids flow to the propane accumulator.

Propane leaves the accumulator and flows to the liquid/liquid exchanger where it is further cooled by the cold NGL(s). A liquid level control valve maintains the propane level in the chiller.

The propane compressor is driven by a 250 HP electric motor. Fluctuations in the refrigeration load are controlled with a hot gas bypass from compressor discharge to the chiller propane inlet thereby maintaining a minimum suction pressure for the compressor.

Permitting History

The following information was derived from a review of the permit files available to DEQ. Permit status is noted as active and in effect (A) or superseded (S).

July 11, 2014	P-2013.0059, Initial permit to construct, Permit status (S)
October 27, 2014	P-2013.0059, PTC revision to remove one compressor engine, install one condensate heater and a series of ten condensate storage tanks, and install an emergency flare, Permit status (A, but will become S upon issuance of this permit)

Application Scope

This PTC is a revision of an existing PTC. The applicant has proposed to install and operate an additional reboiler, condensate heater, and emergency flare. The existing permitted units will be split in half to allow for the installation of the additional units with no change in emissions.

Application Chronology

December 24, 2014	DEQ received an application.
December 29, 2014	DEQ received an application fee.
January 7, 2015	DEQ determined that the application was complete.
January 9, 2015	DEQ made available the draft permit and statement of basis for peer and regional office review.
January 16, 2015	DEQ made available the draft permit and statement of basis for applicant review.
January 23, 2015	DEQ received the permit processing fee.
February 5, 2015	DEQ issued the final permit and statement of basis.

TECHNICAL ANALYSIS

Emissions Units and Control Equipment

Table 1 EMISSIONS UNIT AND CONTROL EQUIPMENT INFORMATION

Source ID No.	Sources	Control Equipment
Compressor Engine ENG1	Manufacturer: Caterpillar Model: G398 TA HCR Manufacture Date: 4/5/1990 Max. capacity: 610 bhp Fuel: Natural Gas	NSCR
(2) Reboilers RBLR-HTR1 & 2	Rated capacity: 0.75 MMBtu/hr Fuel: Natural Gas	None
Stabilizer Reboiler Heater STBL-HTR1	Rated capacity: 1.2 MMBtu/hr Fuel: Natural Gas	None
Engine Heater ENG-HTR1	Rated capacity: 0.2 MMBtu/hr Fuel: Natural Gas	None
(2) Condensate Heaters COND-HTR1 & 2	Rated capacity: 1.5 MMBtu/hr Fuel: Natural Gas	None
(2) Emergency Flares FLR1 & 2	Manufacturer: Flare Industries Model: 850 Throughput: 1750 scf/day	None (considered an emission control device during an emergency situation)
10 Condensate Storage Tanks VENTK	Throughput: 1800 bbl/day Fuel: Crude Oil RVP 10	VRU System Control Efficiency 98.0%
Tank Truck Loading LU1	Throughput: 1800 bbl/day 5000 gal/hr	VRU System Control Efficiency 98.0%

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 compressor engine, an engine heater, two reboilers, a stabilizer reboiler heater, two condensate heaters, two emergency flares, ten condensate storage tanks, and tank truck loading at the facility (see Appendix A) associated with this proposed project. Emissions estimates of criteria pollutant, greenhouse gases (GHG), hazardous air pollutants (HAP), and toxic air pollutants (TAP) were based on emission factors from AP-42, operation of 8,760 hours per year, manufacturer data, and process information specific to the facility for this proposed project. Tank emissions were calculated using U.S. EPA's TANKS program, version 4.09b.

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.

The following table presents the pre-project potential to emit for all criteria and GHG 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 2 PRE-PROJECT POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Source	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]	Source	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]
ENG1	0.045	0.198	0.045	0.198	0.003	0.012	1.34	5.89	1.34	5.89	0.672	2.94	505.3	2213.2
RBLR-HTR1	0.009	0.040	0.007	0.030	0.001	0.003	0.122	0.534	0.102	0.449	0.005	0.029	159.2	697.4
STBL-HTR1	0.007	0.033	0.006	0.024	0.001	0.003	0.098	0.427	0.082	0.359	0.005	0.024	127.4	557.9
ENG-HTR1	0.001	0.005	0.001	0.004	0.0001	0.0004	0.016	0.071	0.014	0.060	0.0009	0.004	21.2	93.0
COND-HTR1	0.019	0.081	0.014	0.061	0.002	0.006	0.244	1.068	0.205	0.897	0.013	0.059	318.4	1394.7
FLR1	0.0002	0.001	0.000	0.000	0.0002	0.0008	0.024	0.107	0.049	0.214	0.006	0.025	19.1	83.7
VENTK	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.195	0.855	0.000	0.000
LU1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.534	0.637	0.000	0.000
Pre Project Totals	**0.081**	**0.358**	**0.073**	**0.317**	**0.007**	**0.025**	**1.84**	**8.10**	**1.79**	**7.87**	**1.43**	**4.57**	**1150.6**	**5039.9**

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.

Post Project Potential to Emit

Post project Potential to Emit is used to establish the change in emissions at a facility and to determine the facility's classification as a result of this project. Post project Potential to Emit includes all permit limits resulting from this project.

The following table presents the post project Potential to Emit for criteria and GHG 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 3 POST PROJECT POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Source	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)]	lb/hr[(a)]	T/yr[(b)]	lb/hr[(a)]	T/yr[(b)]
ENG1	0.045	0.198	0.045	0.198	0.003	0.012	1.34	5.89	1.34	5.89	0.672	2.94	505.3	2213.2
RBLR-HTR1	0.0046	0.020	0.0035	0.015	0.0004	0.0016	0.061	0.267	0.051	0.224	0.0034	0.015	79.6	348.7
RBLR-HTR2	0.0046	0.020	0.0035	0.015	0.0004	0.0016	0.061	0.267	0.051	0.224	0.0034	0.015	79.6	348.7
STBL-HTR1	0.007	0.033	0.006	0.024	0.001	0.003	0.098	0.427	0.082	0.359	0.005	0.024	127.4	557.9
ENG-HTR1	0.001	0.005	0.001	0.004	0.0001	0.0004	0.016	0.071	0.014	0.060	0.0009	0.004	21.2	93.0
COND-HTR1	0.009	0.040	0.007	0.030	0.0007	0.003	0.122	0.534	0.102	0.449	0.007	0.029	159.2	697.4
COND-HTR2	0.009	0.040	0.007	0.030	0.0007	0.003	0.122	0.534	0.102	0.449	0.007	0.029	159.2	697.4
FLR1	0.0001	0.0004	0.000	0.000	0.0001	0.0004	0.012	0.054	0.024	0.107	0.003	0.012	9.6	41.9
FLR2	0.0001	0.0004	0.000	0.000	0.0001	0.0004	0.012	0.054	0.024	0.107	0.003	0.012	9.6	41.9
VENTK	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.195	0.855	0.000	0.000
LU1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.534	0.637	0.000	0.000
Post Project Totals	**0.081**	**0.358**	**0.073**	**0.317**	**0.007**	**0.025**	**1.84**	**8.10**	**1.79**	**7.87**	**1.43**	**4.57**	**1150.6**	**5039.9**

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

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 4 CHANGES IN POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Source	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	lb/hr	T/yr	lb/hr	T/yr
Pre-Project Potential to Emit	0.081	0.358	0.073	0.317	0.007	0.025	1.84	8.10	1.79	7.87	1.43	4.57	1150.6	5039.9
Post Project Potential to Emit	0.081	0.358	0.073	0.317	0.007	0.025	1.84	8.10	1.79	7.87	1.43	4.57	1150.6	5039.9
Changes in Potential to Emit	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Non-Carcinogenic TAP Emissions

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

Pre- and post-project, as well as the change in, non-carcinogenic TAP emissions are presented in the following table:

Table 5 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)
Cyclohexane	2.33E-03	2.33E-03	0.00	70	No
Ethylbenzene	1.33E-04	1.33E-04	0.00	29	No
Heptane	9.73E-03	9.73E-03	0.00	109	No
n-Hexane	1.57E-02	1.57E-02	0.00	12	No
Methylcyclohexane	2.07E-03	2.07E-03	0.00	107	No
Pentane	6.31E-02	6.31E-02	0.00	118	No
Toluene	2.77E-03	2.77E-03	0.00	25	No
2,2,4-Trimethylpentane	6.28E-04	6.28E-04	0.00	23.3	No
Xylene	9.54E-04	9.54E-04	0.00	29	No

None of the PTEs for non-carcinogenic TAP were exceeded as a result of this project. Therefore, modeling is not required for any non-carcinogenic TAP because none of the 24-hour average 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 toxic air pollutants (TAP) is provided in the following table.

Table 6 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)
Benzene	1.41E-04	1.41E-04	0.00	8.0E-04	No
Formaldehyde	3.60E-05	3.60E-05	0.00	5.1E-04	No

None of the PTEs for carcinogenic TAP were exceeded as a result of this project. Therefore, modeling is not required for any carcinogenic TAP because none of 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 HAP 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 7 HAZARDOUS AIR POLLUTANTS EMISSIONS POTENTIAL TO EMIT SUMMARY

Hazardous Air Pollutants	PTE (lb/hr)	PTE (T/yr)
Benzene	0.008	0.0336
Ethylbenzene	0.0001	0.0006
Formaldehyde	0.098	0.4276
n-Hexane	0.016	0.0686
Toluene	0.003	0.0121
2,2,4-Trimethylpentane	0.0006	0.0028
Xylene	0.0009	0.0042
Totals	**0.127**	**0.55**

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

Emissions will not increase as a result of this permitting action, thus the ambient impact analysis is not required.

REGULATORY ANALYSIS

Attainment Designation (40 CFR 81.313)

The facility is located in Payette 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

In accordance with 40 CFR 63 Subpart HH, the National Emission Standards for Hazardous Air Pollutants from Oil and Natural Gas Production Facilities, facility is defined as any grouping of equipment where hydrocarbon liquids are processed, upgraded (i.e., remove impurities or other constituents to meet contract specifications), or stored prior to the point of custody transfer; or where natural gas is processed, upgraded, or stored prior to entering the natural gas transmission and storage source category. For the purpose of a major source determination, facility (including a building, structure, or installation) means oil and natural gas production and processing equipment that is located within the boundaries of an individual surface site as defined in this section. Equipment that is part of a facility will typically be located within close proximity to other equipment located at the same facility. Pieces of production equipment or groupings of equipment located on different oil and gas leases, mineral fee tracts, lease tracts, subsurface or surface unit areas, surface fee tracts, surface lease tracts, or separate surface sites, whether or not connected by a road, waterway, power line or pipeline, shall not be considered part of the same facility. Examples of facilities in the oil and natural gas production source category include, but are not limited to, well sites, satellite tank batteries, central tank batteries, a compressor station that transports natural gas to a natural gas processing plant, and natural gas processing plants. Although the Idaho Refrigeration Plant and associated wells are not an affected source under Subpart HH at this time, it is a definition used in the oil and natural gas industry to define a facility.

In accordance with IDAPA 58.01.01.006.40, facility is defined as all of the pollutant-emitting activities which belong to the same industrial grouping, are located on one (1) or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control). Pollutant-emitting activities shall be considered as part of the same industrial grouping if they belong to the same Major Group (i.e. which has the same two-digit code) as described in the Standard Industrial Classification Manual. The fugitive emissions shall not be considered in determining whether a permit is required unless required by federal law.

DEQ has evaluated the Idaho Refrigeration Plant and the surrounding wells in order to determine if they need to be aggregated for PSD and Title V purposes. Based on the definition of facility as defined in the Rules for the

Control of Air Pollution Control in Idaho, all three indicators identified in the definition of "facility" must be met for all of the pollutant-emitting activities to be considered one facility.

1. Common Control

   The Idaho Refrigeration Plant and the current surrounding wells are owned/operated by Alta Mesa. DEQ considers these sites to be under common control as they are operated under the same owner or operator which has direct or indirect control of the operation of these facilities.

2. Industrial Grouping

   The Idaho Refrigeration Plant has SIC codes of [49]22 (Natural Gas Transmission) and [13]21 (Natural Gas Liquids). The surrounding wells that are owned/operated by Alta Mesa have a SIC code of [13]11 (Natural Gas Production). DEQ considers the Idaho Refrigeration Plant and the surrounding wells to belong to the same industrial grouping.

3. Contiguous or Adjacent Properties

   In 2012, the 6th Circuit Court of Appeals ruled to vacate and remand an EPA Title V applicability determination that Summit Petroleum's oil and gas sweetening plant and related wells in Michigan constitute a single stationary source. The Court's decision concluded that the term "adjacent" required some physical proximity and that considering the functional interrelatedness of the wells and the sweetening plant was improper. The wells in Summit varied from 500 feet to 8 miles from the sweetening plant. By memo dated December 21, 2012, EPA stated for permitting actions occurring outside of the 6th Circuit, permitting agencies should continue to make source determinations on a case-by-case basis using the three factor test.

   In considering whether the Idaho Refrigeration Plant and current surrounding wells are adjacent, Alta Mesa submitted a map showing the location of the plant in relation to the surrounding wells. Based on this map, the closest well owned/operated by Alta Mesa is approximately 1.3 miles away from the Idaho Refrigeration Plant, and the furthest is approximately 12 miles away. Further investigation of the map shows that the closest well is on the opposite side of Highway 30 and approximately four large parcels of land owned by different entities separate the facility from the well. Given the distance of the current wells and the number of properties that separate the facility from the closest well, DEQ does not consider the wells to meet the definition of contiguous or adjacent.

   In addition, as described above in 40 CFR 63 Subpart HH, facility is defined as equipment that is located within the boundaries of an individual surface site. Pieces of production equipment or groupings of equipment located on different oil and gas leases, or separate surface sites, whether or not connected by a road, waterway, power line or pipeline, shall not be considered part of the same facility. Consistent with this definition, the wells are not considered part of the refrigeration plant because they are located on separate surface sites.

The refrigeration plant and surrounding wells are under common control, belong to the same major industrial grouping, but are not considered contiguous or adjacent. Therefore, the surrounding wells and Idaho Refrigeration Plant do not need to be aggregated at this time as they do not meet the criteria identified in the definition of facility.

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 revision. 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 2.4 and 3.3.

Standards for New Sources (IDAPA 58.01.01.676)

IDAPA 58.01.01.676 ..... Standards for New Sources

The fuel burning equipment located at this facility, with a maximum rated input of ten (10) million BTU per hour or more, are subject to a particulate matter limitation of 0.015 gr/dscf of effluent gas corrected to 3% oxygen by volume when combusting gaseous fuels. Fuel-Burning Equipment is defined as any furnace, boiler, apparatus, stack and all appurtenances thereto, used in the process of burning fuel for the primary purpose of producing heat or power by indirect heat transfer. This requirement is assured by Permit Condition 2.3.

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

IDAPA 58.01.01.301 ..... Requirement to Obtain Tier I Operating Permit

Post project facility-wide emissions from this facility do not have a potential to emit greater than 100 tons per year for PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, and VOC or 10 tons per year for any one HAP or 25 tons per year for all HAP combined as demonstrated previously in the Emissions Inventories Section of this analysis. Therefore, the facility is not a Tier I source in accordance with IDAPA 58.01.01.006 and the requirements of IDAPA 58.01.01.301 do not apply.

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 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)

The facility remains subject to the requirements of 40 CFR 60 Subpart OOOO – Standards of Performance for Crude Oil and Natural Gas Production, Transmission, and Distribution. For a breakdown of the subpart, please refer to the Statement of Basis issued July 11, 2014.

With the addition of ten condensate storage tanks, the facility potentially could be a storage vessel affected facility under 40 CFR 60 Subpart OOOO.

In accordance with 40 CFR 60.5365(e), each storage vessel affected facility, which is a single storage vessel located in the oil and natural gas production segment, natural gas processing segment or natural gas transmission and storage segment, and has the potential for VOC emissions equal to or greater than 6 tpy as determined according to this section by October 15, 2013 for Group 1 storage vessels and by April 15, 2014, or 30 days after startup (whichever is later) for Group 2 storage vessels. A storage vessel affected facility that subsequently has its potential for VOC emissions decrease to less than 6 tpy shall remain an affected facility under this subpart.

The VOC emissions from the condensate storage tanks at the facility are below the 6 tons per year thus satisfying any potentially applicable requirements under the subpart.

NESHAP Applicability (40 CFR 61)

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

MACT Applicability (40 CFR 63)

The facility remains subject to the requirements of 40 CFR 63 Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines. For a breakdown of the subpart, please refer to the Statement of Basis issued July 11, 2014.

Permit Conditions Review

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

Table 1.1 was revised to include the new emission sources at the facility including the additional condensate heater, emergency flare, and reboiler.

Table 2.1 was revised to include the new emission sources at the facility including the additional condensate heater, emergency flare, and reboiler.

Permit Condition 2.5 was revised to include the additional flare.

Permit Condition 2.7 was revised to include the additional flare.

Permit Condition 4.1 requires that the permittee comply with all of the permit terms and conditions pursuant to Idaho Code §39-101.

Permit Condition 4.2 requires that the permittee maintain and operate all treatment and control facilities at the facility in accordance with IDAPA 58.01.01.211.

Permit Condition 4.3 specifies that no permit condition is intended to relieve or exempt the permittee from compliance with applicable state and federal requirements, in accordance with IDAPA 58.01.01.212.01.

Permit Condition 4.4 requires that the permittee allow DEQ inspection and entry pursuant to Idaho Code §39-108.

Permit Condition 4.5 specifies that the permit expires if construction has not begun within two years of permit issuance or if construction has been suspended for a year in accordance with IDAPA 58.01.01.211.02.

Permit Condition 4.6 requires that the permittee notify DEQ of the dates of construction and operation, in accordance with IDAPA 58.01.01.211.03.

Permit Condition 4.7 requires that the permittee notify DEQ at least 15 days prior to any performance test to provide DEQ the option to have an observer present, in accordance with IDAPA 58.01.01.157.03.

Permit Condition 4.8 requires that any performance testing be conducted in accordance with the procedures of IDAPA 58.01.01.157, and encourages the permittee to submit a protocol to DEQ for approval prior to testing.

Permit Condition 4.9 requires that the permittee report any performance test results to DEQ within 30 days of completion, in accordance with IDAPA 58.01.01.157.04-05.

Permit Condition 4.10 requires that the permittee maintain sufficient records to ensure compliance with permit conditions, in accordance with IDAPA 58.01.01.211.

Permit Condition 4.11 requires that the permittee follow the procedures required for excess emissions events, in accordance with IDAPA 58.01.01.130-136.

Permit Condition 4.12 requires that a responsible official certify all documents submitted to DEQ, in accordance with IDAPA 58.01.01.123.

Permit Condition 4.13 requires that no person make false statements, representations, or certifications, in accordance with IDAPA 58.01.01.125.

Permit Condition 4.14 requires that no person render inaccurate any required monitoring device or method, in accordance with IDAPA 58.01.01.126.

Permit Condition 4.15 specifies that this permit to construct is transferable, in accordance with the procedures of IDAPA 58.01.01.209.06.

Permit Condition 4.16 specifies that permit conditions are severable, in accordance with IDAPA 58.01.01.211.

PUBLIC REVIEW

Public Comment Opportunity

Because this permitting action does not authorize an increase in emissions, an opportunity for public comment period was not required or provided in accordance with IDAPA 58.01.01.209.04 or IDAPA 58.01.01.404.04.

APPENDIX A – EMISSIONS INVENTORIES

Alta Mesa Services
Hwy 30 Treating (Refrigeration) Plant Emission Summary
12/2/2014

Source Description		Caterpillar G398 TA	Reboiler	Reboiler	Stabilizer Heater	Condensate Heater	Condensate Heater	Engine Heater	Fugitive Emissions	Flare	Flare	Stabilized Condensate Tanks	Loading Emissions	Summary of Emissions
Source Information		Compressor Engine - Richburn with Emit Catalytic Oxidizer	0.75 MMbtu/hr	0.75 MMbtu/hr	1.2 MMbtu/hr	1.5 MMbtu/hr	1.5 MMbtu/hr	0.2 MMbtu/hr		Pilot Emissions	Pilot Emissions	10 Tanks @ 1800 BOPD @ 98%, W&B Only	1800 BOPD Loading @ 98% control	
EPNs		ENG1	RBLR-HTR1	RBLR-HTR2	STBL-HTR1	COND-HTR1	COND-HTR2	ENG-HTR1	FUG1	FLR1	FLR2	OILTNK	LOAD1	
VOC_{total}	lb/hr	0.6718	0.0034	0.0034	0.0054	0.0067	0.0067	0.0009	0.9721	0.0028	0.0028	0.1952	0.5340	**2.4051**
	TPY	2.9425	0.0147	0.0147	0.0235	0.0294	0.0294	0.0039	4.2577	0.0123	0.0123	0.8548	1.5281	**9.7234**
NOx	lb/hr	1.3436	0.0610	0.0610	0.0976	0.1220	0.1220	0.0163		0.0122	0.0122			**1.8477**
	TPY	5.8850	0.2671	0.2671	0.4273	0.5341	0.5341	0.0712		0.0535	0.0535			**8.0930**
CO	lb/hr	1.3436	0.0512	0.0512	0.0820	0.1024	0.1024	0.0137		0.0244	0.0244			**1.7953**
	TPY	5.8850	0.2243	0.2243	0.3589	0.4487	0.4487	0.0598		0.1068	0.1068			**7.8635**
PM_{10}	lb/hr	0.0452	0.0046	0.0046	0.0074	0.0093	0.0093	0.0012		0.0001	0.0001			**0.0819**
	TPY	0.1981	0.0203	0.0203	0.0325	0.0406	0.0406	0.0054		0.0004	0.0004			**0.3585**
$PM_{2.5}$	lb/hr	0.0452	0.0035	0.0035	0.0056	0.0070	0.0070	0.0009						**0.0726**
	TPY	0.1981	0.0152	0.0152	0.0244	0.0304	0.0304	0.0041						**0.3178**
SO_2	lb/hr	0.0028	0.0004	0.0004	0.0006	0.0007	0.0007	0.0001		0.0001	0.0001			**0.0059**
	TPY	0.0123	0.0016	0.0016	0.0026	0.0032	0.0032	0.0004		0.0004	0.0004			**0.0256**
Formaldehyde	lb/hr	0.0976	4.57E-06	4.57E-06	7.32E-06	9.15E-06	9.15E-06	1.22E-06						**0.0976**
	TPY	0.4274	2.00E-05	2.00E-05	3.20E-05	4.01E-05	4.01E-05	5.34E-06						**0.4276**
Benzene	lb/hr	0.0075	1.28E-06	1.28E-06	2.05E-06	2.56E-06	2.56E-06	3.41E-07						**0.0075**
	TPY	0.0329	5.61E-06	5.61E-06	8.97E-06	1.12E-05	1.12E-05	1.50E-06						**0.0330**
Toluene	lb/hr	0.0027	2.07E-06	2.07E-06	3.32E-06	4.15E-06	4.15E-06	5.53E-07						**0.0027**
	TPY	0.0116	9.08E-06	9.08E-06	1.45E-05	1.82E-05	1.82E-05	2.42E-06						**0.0117**
Ethylbenzene	lb/hr	0.0001												**0.0001**
	TPY	0.0005												**0.0005**
Xylene	lb/hr	0.0009												**0.0009**
	TPY	0.0041												**0.0041**

Alta Mesa Services
Hwy 30 Treating (Refrigeration) Plant Emission Summary
12/2/2014

Source Description		Caterpillar G398 TA	Reboiler	Reboiler	Stabilizer Heater	Condensate Heater	Condensate Heater	Engine Heater	Fugitive Emissions	Flare	Flare	Stabilized Condensate Tanks	Loading Emissions	Summary of Emissions	Summary of Emissions Original Permit	Increase/ decrease
Source Information		Compressor Engine - Richburn with Emit Catalytic Oxidizer	0.75 MMbtu/hr	0.75 MMbtu/hr	1.2 MMbtu/hr	1.5 MMbtu/hr	1.5 MMbtu/hr	0.2 MMbtu/hr		Pilot Emissions	Pilot Emissions	10 Tanks @ 1800 BOPD @ 98%, W&B Only	1800 BOPD Loading @ 98% control			
EPNs		ENG1	RBLR-HTR1	RBLR-HTR2	STBL-HTR1	COND-HTR1	COND-HTR2	ENG-HTR1	FUG1	FLR1	FLR2	OILTNK	LOAD1			
VOC_{total}	lb/hr	0.6718	0.0034	0.0034	0.0054	0.0067	0.0067	0.0009	0.9721	0.0028	0.0028	0.1952	0.5340	**2.4051**	**2.4191**	-0.0141
	TPY	2.9425	0.0147	0.0147	0.0235	0.0294	0.0294	0.0039	4.2577	0.0123	0.0123	0.8548	1.5281	**9.7234**	**10.5958**	-0.8725
NOx	lb/hr	1.3436	0.0610	0.0610	0.0976	0.1220	0.1220	0.0163		0.0122	0.0122			**1.8477**	**2.8620**	-1.0143
	TPY	5.8850	0.2671	0.2671	0.4273	0.5341	0.5341	0.0712		0.0535	0.0535			**8.0930**	**12.5357**	-4.4426
CO	lb/hr	1.3436	0.0512	0.0512	0.0820	0.1024	0.1024	0.0137		0.0244	0.0244			**1.7953**	**2.8341**	-1.0387
	TPY	5.8850	0.2243	0.2243	0.3589	0.4487	0.4487	0.0598		0.1068	0.1068			**7.8635**	**12.4132**	-4.5497
PM_{10}	lb/hr	0.0452	0.0046	0.0046	0.0074	0.0093	0.0093	0.0012		0.0001	0.0001			**0.0819**	**0.1037**	-0.0219
	TPY	0.1981	0.0203	0.0203	0.0325	0.0406	0.0406	0.0054		0.0004	0.0004			**0.3585**	**0.4544**	-0.0958
$PM_{2.5}$	lb/hr	0.0452	0.0035	0.0035	0.0056	0.0070	0.0070	0.0009						**0.0726**	**0.1004**	-0.0278
	TPY	0.1981	0.0152	0.0152	0.0244	0.0304	0.0304	0.0041						**0.3178**	**0.4398**	-0.1220
SO_2	lb/hr	0.0028	0.0004	0.0004	0.0006	0.0007	0.0007	0.0001		0.0001	0.0001			**0.0059**	**0.0066**	-0.0008
	TPY	0.0123	0.0016	0.0016	0.0026	0.0032	0.0032	0.0004		0.0004	0.0004			**0.0256**	**0.0291**	-0.0035
Formaldehyde	lb/hr	0.0976	4.57E-06	4.57E-06	7.32E-06	9.15E-06	9.15E-06	1.22E-06						**0.0976**	**0.1952**	-0.0976
	TPY	0.4274	2.00E-05	2.00E-05	3.20E-05	4.01E-05	4.01E-05	5.34E-06						**0.4276**	**0.8549**	-0.4273
Benzene	lb/hr	0.0075	1.28E-06	1.28E-06	2.05E-06	2.56E-06	2.56E-06	3.41E-07						**0.0075**	**0.0150**	-0.0075
	TPY	0.0329	5.61E-06	5.61E-06	8.97E-06	1.12E-05	1.12E-05	1.50E-06						**0.0330**	**0.0659**	-0.0329
Toluene	lb/hr	0.0027	2.07E-06	2.07E-06	3.32E-06	4.15E-06	4.15E-06	5.53E-07						**0.0027**	**0.0053**	-0.0026
	TPY	0.0116	9.08E-06	9.08E-06	1.45E-05	1.82E-05	1.82E-05	2.42E-06						**0.0117**	**0.0233**	-0.0116
Ethylbenzene	lb/hr	0.0001												**0.0001**	**0.0002**	-0.0001
	TPY	0.0005												**0.0005**	**0.0010**	-0.0005
Xylene	lb/hr	0.0009												**0.0009**	**0.0019**	-0.0009
	TPY	0.0041												**0.0041**	**0.0081**	-0.0041

EPN: ENG1
Caterpillar G398 TA HCR

Manufacturer's Rated Horsepower	610	hp
Fuel Input	0.007804	MMBtu/hp-hr

Operating Schedule: 8760 hours annually

Pollutant	Reference	Control Efficiency	FACTORS		EMISSIONS	
			grams/bhp-hr	lb/MMBtu	lbs/hr	TPY
NOx	Manuf. Engine Data	-----	1.00		1.3436	5.8850
CO	Manuf. Engine Data	-----	1.00		1.3436	5.8850
VOC_{total}	Manuf. Engine Data	0%	0.50		0.6718	2.9425
SO2	AP-42	-----		0.0006	0.0028	0.0123
PM10	AP-42	-----		0.0095	0.0452	0.1981
PM2.5	AP-42	-----		0.0095	0.0452	0.1981
HCHO	AP-42	0%		0.0205	0.0976	0.4274
Benzene	AP-42	0%		0.0016	0.0075	0.0329
Toluene	AP-42	0%		0.0006	0.0027	0.0116
Ethylbenzene	AP-42	0%		0.00002	0.0001	0.0005
Xylene	AP-42	0%		0.00020	0.0009	0.0041

Example Calculations:
NOx: ((1.00 grams/bhp-hr)(610 bhp))(1/454) = 1.34 lbs/hr
NOx: (1.34 lbs/hr)(8760 hrs/yr)/2000 = 5.885 TPY

Calculation Notes:
Engine Data based on AP-42 Section 3.2, Manufacturer Engine Data Sheets, Engine Stack Test (TRC-4-08)

Speciation Table

Component	Mole Wt	Mole%	lb/mol Mix	Wt%	Percentage	EMISSIONS	
						lbs/hr	TPY
Methane	16.043	84.8561	13.613	66.981	67.0%	VOC Speciation	
Nitrogen	28.013	0.4883	0.137	0.673	0.7%		
Carbon Dioxide	44.01	0.1433	0.063	0.310	0.3%		
Ethane	30.07	6.2131	1.868	9.192	9.2%		
Hydrogen Sulfide	34.08	0.0000	0.000	0.000	0.0%		
Propane	44.097	4.0209	1.773	8.724	8.7%	0.0586	0.2567
Iso-butane	58.124	0.9324	0.542	2.666	2.7%	0.0179	0.0785
N-Butane	58.124	1.5751	0.916	4.505	4.5%	0.0303	0.1325
Iso-Pentane	72.151	0.5374	0.388	1.908	1.9%	0.0128	0.0561
N-Pentane	72.151	0.5433	0.392	1.929	1.9%	0.0130	0.0568
N-Hexane	86.07	0.2249	0.194	0.952	1.0%	0.0064	0.0280
Cyclohexane	84.16	0.0342	0.029	0.142	0.1%	0.0010	0.0042
Heptanes	100.21	0.1201	0.120	0.592	0.6%	0.0040	0.0174
Methylcyclohexane	96.17	0.0266	0.026	0.126	0.1%	0.0008	0.0037
224-Trimethylpentane	114.22	0.0068	0.008	0.038	0.0%	0.0003	0.0011
Benzene	78.11	0.0035	0.003	0.013	0.0%	0.0001	0.0004
Toluene	92.14	0.0021	0.002	0.010	0.0%	0.0001	0.0003
Ethylbenzene	106.17	0.0003	0.000	0.002	0.0%	0.00001	0.0000
Xylenes	106.16	0.0005	0.001	0.003	0.0%	0.00002	0.0001
Hexanes +	92.12	0.2421	0.223	1.097	1.1%	0.0074	0.0323
C8 Heavies	96.09	0.0290	0.028	0.137	0.1%	0.0009	0.0040
		8.30	20.324	100.000	100%		
		100.0000	VOC 22.843				

Notes:
Gas Analysis - Questar Applied Technology, 1/3/2013, ML Investments 1-10

EPN: RBLR-HTR1

Name/Type	Reboiler Heater
Heater Rating (MMBtu/hr	0.75
Operating Hours	8760
Fuel Heat Value (Btu/SCF)	1230

Pollutant	Emission Factor (lb/MMCF)	Reference	lb/hr	tpy
VOC	5.5	AP-42	0.0034	0.0147
NOx	100	AP-42	0.0610	0.2671
CO	84	AP-42	0.0512	0.2243
PM_{10}	7.6	AP-42	0.0046	0.0203
$PM_{2.5}$	5.7	AP-42	0.0035	0.0152
SO_2	0.6	AP-42	0.0004	0.0016
HCHO	0.0075	AP-42	0.000005	0.000020
Benzene	0.0021	AP-42	0.000001	0.000006
Toluene	0.0034	AP-42	0.000002	0.000009

Calculation Notes:
Natural Gas Combustion Factor Data based on AP-42, Table 1.4-1 - 1.4.3.

EPN: RBLR-HTR2

Name/Type	Reboiler Heater
Heater Rating (MMBtu/hr	0.75
Operating Hours	8760
Fuel Heat Value (Btu/SCF)	1230

Pollutant	Emission Factor (lb/MMCF)	Reference	lb/hr	tpy
VOC	5.5	AP-42	0.0034	0.0147
NOx	100	AP-42	0.0610	0.2671
CO	84	AP-42	0.0512	0.2243
PM_{10}	7.6	AP-42	0.0046	0.0203
$PM_{2.5}$	5.7	AP-42	0.0035	0.0152
SO_2	0.6	AP-42	0.0004	0.0016
HCHO	0.0075	AP-42	0.000005	0.000020
Benzene	0.0021	AP-42	0.000001	0.000006
Toluene	0.0034	AP-42	0.000002	0.000009

Calculation Notes:
Natural Gas Combustion Factor Data based on AP-42, Table 1.4-1 - 1.4.3.

EPN:	STBL-HTR1

Name/Type	Stabilizer Heater
Heater Rating (MMBtu/hr	1.2
Operating Hours	8760
Fuel Heat Value (Btu/SCF)	1230

Pollutant	Emission Factor (lb/MMCF)	Reference	lb/hr	tpy
VOC	5.5	AP-42	0.0054	0.0235
NOx	100	AP-42	0.0976	0.4273
CO	84	AP-42	0.0820	0.3589
PM_{10}	7.6	AP-42	0.0074	0.0325
$PM_{2.5}$	5.7	AP-42	0.0056	0.0244
SO_2	0.6	AP-42	0.0006	0.0026
HCHO	0.0075	AP-42	0.000007	0.000032
Benzene	0.0021	AP-42	0.000002	0.000009
Toluene	0.0034	AP-42	0.000003	0.000015

Calculation Notes:
Natural Gas Combustion Factor Data based on AP-42, Table 1.4-1 - 1.4.3.

EPN:	COND-HTR1

Name/Type	Condensate Heater
Heater Rating (MMBtu/hr	1.5
Operating Hours	8760
Fuel Heat Value (Btu/SCF)	1230

Pollutant	Emission Factor (lb/MMCF)	Reference	lb/hr	tpy
VOC	5.5	AP-42	0.0067	0.0294
NOx	100	AP-42	0.1220	0.5341
CO	84	AP-42	0.1024	0.4487
PM_{10}	7.6	AP-42	0.0093	0.0406
$PM_{2.5}$	5.7	AP-42	0.0070	0.0304
SO_2	0.6	AP-42	0.0007	0.0032
HCHO	0.0075	AP-42	0.000009	0.000040
Benzene	0.0021	AP-42	0.000003	0.000011
Toluene	0.0034	AP-42	0.000004	0.000018

Calculation Notes:
Natural Gas Combustion Factor Data based on AP-42, Table 1.4-1 - 1.4.3.

EPN:	COND-HTR2

Name/Type	Condensate Heater
Heater Rating (MMBtu/hr	1.5
Operating Hours	8760
Fuel Heat Value (Btu/SCF)	1230

Pollutant	Emission Factor (lb/MMCF)	Reference	lb/hr	tpy
VOC	5.5	AP-42	0.0067	0.0294
NOx	100	AP-42	0.1220	0.5341
CO	84	AP-42	0.1024	0.4487
PM_{10}	7.6	AP-42	0.0093	0.0406
$PM_{2.5}$	5.7	AP-42	0.0070	0.0304
SO_2	0.6	AP-42	0.0007	0.0032
HCHO	0.0075	AP-42	0.000009	0.000040
Benzene	0.0021	AP-42	0.000003	0.000011
Toluene	0.0034	AP-42	0.000004	0.000018

Calculation Notes:
Natural Gas Combustion Factor Data based on AP-42, Table 1.4-1 - 1.4.3.

EPN:	ENG-HTR1

Name/Type	Engine Heater
Heater Rating (MMBtu/hr	0.2
Operating Hours	8760
Fuel Heat Value (Btu/SCF)	1230

Pollutant	Emission Factor (lb/MMCF)	Reference	lb/hr	tpy
VOC	5.5	AP-42	0.0009	0.0039
NOx	100	AP-42	0.0163	0.0712
CO	84	AP-42	0.0137	0.0598
PM_{10}	7.6	AP-42	0.0012	0.0054
$PM_{2.5}$	5.7	AP-42	0.0009	0.0041
SO_2	0.6	AP-42	0.0001	0.0004
HCHO	0.0075	AP-42	0.000001	0.000005
Benzene	0.0021	AP-42	0.000000	0.000001
Toluene	0.0034	AP-42	0.000001	0.000002

Calculation Notes:
Natural Gas Combustion Factor Data based on AP-42, Table 1.4-1 - 1.4.3.

FUGITIVE EMISSION CALCULATIONS

EPN: FUG1

Component Type	Gas Component Count	Heavy Oil Component Count	Light Oil Component Count	Water/Light Oil Component Count
Valves	189	20	65	24
Pumps	0	4	0	1
Flanges / Connectors	167	40	97	17
Compressors	4	0	0	0
Relief Lines	15	0	2	2
Open-ended Lines	4	0	0	1
Other	0	0	6	6
Process Drains	11	17	14	7

Component Type	Gas lb/hr per component	Heavy Oil lb/hr per component	Light Oil lb/hr per component	Water/Light Oil lb/hr per component	Gas Emission Rate (lbs/hr)	Heavy Oil Emssion Rate (lbs/hr)	Light Oil Emission Rate (lbs/hr)	Water/ Light Oil Emission Rate (lbs/hr)	Control Efficiency %	Control Efficiency %	Total Emissions lbs/hr	Total Emissions tn/yr
Valves	0.0092	0.00002	0.0055	0.0002	0.3972	0.0004	0.3575	0.0052	85%		0.1188	0.5202
Pumps	0.0053	0.0011	0.0287	0.0001	0.0000	0.0045	0.0000	0.0001	85%		0.0046	0.0200
Flanges / Connectors	0.0009	0.000001	0.0002	0.0000	0.0328	0.000034	0.0236	0.0001	85%	30%	0.0396	0.1734
Compressors	0.0194	0.0001	0.0165	0.0309	0.0177	0.000000	0.0000	0.0000	85%		0.0027	0.0116
Relief Lines	0.0194	0.0001	0.0165	0.0309	0.0665	0.000000	0.0330	0.0618	85%		0.0242	0.1060
Open-ended Lines	0.0044	0.0003	0.0031	0.0006	0.0040	0.000000	0.0000	0.0006	85%		0.0007	0.0030
Other	0.0194	0.0001	0.0165	0.0309	0.0000	0.000000	0.0990	0.1854	0%		0.2844	1.2457
Process Drains	0.0194	0.0001	0.0165	0.0309	0.0487	0.0012	0.2310	0.2163	0%		0.4972	2.1778
Totals											**0.9721**	**4.2577**

Component	Mole Wt	Mole%	lb/mol Mix	Wt%	Percentage	EMISSIONS lbs/hr	EMISSIONS TPY
Methane	16.043	84.8561	13.613	66.981	67.0%		
Nitrogen	28.013	0.4883	0.137	0.673	0.7%		
Carbon Dioxide	44.01	0.1433	0.063	0.310	0.3%		
Ethane	30.07	6.2131	1.868	9.192	9.2%	VOC	
Hydrogen Sulfide	34.08	0.0000	0.000	0.000	0.0%	Speciation	
Propane	44.097	4.0209	1.773	8.724	8.7%	0.0848	0.3714
Iso-butane	58.124	0.9324	0.542	2.666	2.7%	0.0259	0.1135
N-Butane	58.124	1.5751	0.916	4.505	4.5%	0.0438	0.1918
Iso-Pentane	72.151	0.5374	0.388	1.908	1.9%	0.0185	0.0812
N-Pentane	72.151	0.5433	0.392	1.929	1.9%	0.0187	0.0821
N-Hexane	86.07	0.2249	0.194	0.952	1.0%	0.0093	0.0406
Cyclohexane	84.16	0.0342	0.029	0.142	0.1%	0.0014	0.0060
Heptanes	100.21	0.1201	0.120	0.592	0.6%	0.0058	0.0252
Methylcyclohexane	96.17	0.0266	0.026	0.126	0.1%	0.0012	0.0054
224-Trimethylpentane	114.22	0.0068	0.008	0.038	0.0%	0.0004	0.0016
Benzene	78.11	0.0035	0.003	0.013	0.0%	0.0001	0.0006
Toluene	92.14	0.0021	0.002	0.010	0.0%	0.0001	0.0004
Ethylbenzene	106.17	0.0003	0.000	0.002	0.0%	0.0000	0.0001
Xylenes	106.16	0.0005	0.001	0.003	0.0%	0.0000	0.0001
Hexanes +	92.12	0.2421	0.223	1.097	1.1%	0.0107	0.0467
C8 Heavies	96.09	0.0290	0.028	0.137	0.137%	0.0013	0.0058
		8.30	20.324	100.000	100%		
		100.0000	VOC 22.843		22.8%		

Notes:
Gas Analysis - Questar Applied Technology, 1/3/2013, ML Investments 1-10

Facility Flare Calculations

EPN: FLR1

Waste Gas Combustion Emissions

		Pollutant	Reference	FACTORS lb/MMBtu	EMISSIONS lbs/hr	EMISSIONS TPY
Hours of Operation	-	NOx	TCEQ Table 4	0.138	0.0000	0.0000
Hours per Day	-	CO	TCEQ Table 4	0.276	0.0000	0.0000
Throughput (SCFD)	-	THC	AP-42	0.140	0.0000	0.0000
Hourly Flowrate (SCFH)	-	VOC	THC %		0.0000	0.0000
Lower heating value (BTU/SCF)	1,214	SO2	AP-42	0.0010	0.0000	0.0000
Combustion Rate	0.00	PM10 / soot	AP-42	0.001	0.0000	0.0000

Calculation Notes: *VOCs taken from gas analysis listed below*

Emission Factors are from AP-42 - 13.5

Pilot Combustion Emissions

		Pollutant	Reference	FACTORS lb/MMBtu	EMISSIONS lbs/hr	EMISSIONS TPY
Hours of Operation	8,760	NOx	TCEQ Table 4	0.138	0.0122	0.0535
Hours per Day	24	CO	TCEQ Table 4	0.276	0.0244	0.1068
Throughput (SCFD)	1,750	THC	AP-42	0.140	0.0124	0.0543
Hourly Flowrate (SCFH)	73	VOC	THC %		0.0028	0.0123
Lower heating value (BTU/SCF)	1,214	SO2	AP-42	0.0010	0.0001	0.0004
Combustion Rate	0.09	PM10 / soot	AP-42	0.001	0.0001	0.0004

Calculation Notes: *VOCs taken from gas analysis listed below*

Emission Factors are from AP-42 - 13.5

Waste Gas Stream to Flare **VOC % Calculation**	Mole %	Mole Wt.	lb/mol Mix	Weight %
Methane	84.856	16.04	13.611	67.103
Nitrogen	0.488	28.01	0.137	0.674
Carbon Dioxide	0.143	44.01	0.063	0.311
Ethane	6.213	30.07	1.868	9.211
Hydrogen Sulfide	0.000	34.08	0.000	0.000
Propane	4.021	44.09	1.773	8.740
Iso-butane	0.932	58.12	0.542	2.672
N-Butane	1.575	58.12	0.915	4.513
Iso-Pentane	0.514	72.14	0.371	1.828
N-Pentane	0.543	72.14	0.392	1.932
Hexanes+	0.710	86.17	0.612	3.016
Total Organic including Non-VOC	100.00		20.28	100.0
Total VOC				**23**

Notes:

Analysis from ML Investment 1-10 - 1/3/2013

Pilot Gas Stream to Flare **VOC % Calculation**	Mole %	Mole Wt.	lb/mol Mix	Weight %
Methane	84.856	16.04	13.611	67.103
Nitrogen	0.488	28.01	0.137	0.674
Carbon Dioxide	0.143	44.01	0.063	0.311
Ethane	6.213	30.07	1.868	9.211
Hydrogen Sulfide	0.000	34.08	0.000	0.000
Propane	4.021	44.09	1.773	8.740
Iso-butane	0.932	58.12	0.542	2.672
N-Butane	1.575	58.12	0.915	4.513
Iso-Pentane	0.514	72.14	0.371	1.828
N-Pentane	0.543	72.14	0.392	1.932
Hexanes+	0.710	86.17	0.612	3.016
Total Organic including Non-VOC	100.00		20.28	100.0
Total VOC				**23**

Notes:

Analysis from ML Investment 1-10 - 1/3/2013

Facility Flare Calculations

EPN: FLR2

Waste Gas Combustion Emissions

				FACTORS	EMISSIONS	
		Pollutant	Reference	lb/MMBtu	lbs/hr	TPY
Hours of Operation	-	NOx	TCEQ Table 4	0.138	0.0000	0.0000
Hours per Day	-	CO	TCEQ Table 4	0.276	0.0000	0.0000
Throughput (SCFD)	-	THC	AP-42	0.140	0.0000	0.0000
Hourly Flowrate (SCFH)	-	VOC	THC %		0.0000	0.0000
Lower heating value (BTU/SCF)	1,214	SO2	AP-42	0.0010	0.0000	0.0000
Combustion Rate	0.00	PM10 / soot	AP-42	0.001	0.0000	0.0000

Calculation Notes: *VOCs taken from gas analysis listed below*

Emission Factors are from AP-42 - 13.5

Pilot Combustion Emissions

				FACTORS	EMISSIONS	
		Pollutant	Reference	lb/MMBtu	lbs/hr	TPY
Hours of Operation	8,760	NOx	TCEQ Table 4	0.138	0.0122	0.0535
Hours per Day	24	CO	TCEQ Table 4	0.276	0.0244	0.1068
Throughput (SCFD)	1,750	THC	AP-42	0.140	0.0124	0.0543
Hourly Flowrate (SCFH)	73	VOC	THC %		0.0028	0.0123
Lower heating value (BTU/SCF)	1,214	SO2	AP-42	0.0010	0.0001	0.0004
Combustion Rate	0.09	PM10 / soot	AP-42	0.001	0.0001	0.0004

Calculation Notes: *VOCs taken from gas analysis listed below*

Emission Factors are from AP-42 - 13.5

Waste Gas Stream to Flare	Mole %	Mole Wt.	lb/mol	Weight %
VOC % Calculation			Mix	
Methane	84.856	16.04	13.611	67.103
Nitrogen	0.488	28.01	0.137	0.674
Carbon Dioxide	0.143	44.01	0.063	0.311
Ethane	6.213	30.07	1.868	9.211
Hydrogen Sulfide	0.000	34.08	0.000	0.000
Propane	4.021	44.09	1.773	8.740
Iso-butane	0.932	58.12	0.542	2.672
N-Butane	1.575	58.12	0.915	4.513
Iso-Pentane	0.514	72.14	0.371	1.828
N-Pentane	0.543	72.14	0.392	1.932
Hexanes+	0.710	86.17	0.612	3.016
Total Organic including Non-VOC	100.00		20.28	100.0
Total VOC				**23**

Notes:

Analysis from ML Investment 1-10 - 1/3/2013

Pilot Gas Stream to Flare	Mole %	Mole Wt.	lb/mol	Weight %
VOC % Calculation			Mix	
Methane	84.856	16.04	13.611	67.103
Nitrogen	0.488	28.01	0.137	0.674
Carbon Dioxide	0.143	44.01	0.063	0.311
Ethane	6.213	30.07	1.868	9.211
Hydrogen Sulfide	0.000	34.08	0.000	0.000
Propane	4.021	44.09	1.773	8.740
Iso-butane	0.932	58.12	0.542	2.672
N-Butane	1.575	58.12	0.915	4.513
Iso-Pentane	0.514	72.14	0.371	1.828
N-Pentane	0.543	72.14	0.392	1.932
Hexanes+	0.710	86.17	0.612	3.016
Total Organic including Non-VOC	100.00		20.28	100.0
Total VOC				**23**

Notes:

Analysis from ML Investment 1-10 - 1/3/2013

EPN: VENTK
Tank Emissions

Oil Production:	1800	bbl/day
Tank Count:	10	
Control Efficiency:	98.0%	

4.09d Tank Calculations	Hourly Emissions (lb/hr)	Annual Emissions (tn/yr)
VOC	0.1952	0.8548

Total emissions represent emissions with 10 total tanks

Type	Tank Size	Tank Throughput (BOPD)	Working Loss	Breathing Loss	Total Emissions
Crude Oil RVP 10	10 @ 400bbl each	180	6703.66	1844.8	8548.46

EPN: LU1

Tank Truck Loading Emissions

Daily Loading	1800	bbl/day
Annual Loadout Amount:	27594	Mgal/yr
Maximum Gallons per Hour:	5000	gal/hr
Control Efficiency	98%	

Saturation Factor (Submerged Dedicated):	0.6	
* True Vapor Pressure of Liquid Loaded:	8.00	psia
* Molecular Weight of Vapors:	50	
Temperature '(R) @ 80F:	540	

Pollutant	Emission Factor (lb/1000gal)*	Reference	Control Efficiency	EMISSIONS Annual (TPY)
VOC_{total}	5.54	AP-42	-----	1.528

Example Calculations:

VOC: (12.46*[(S*P*M)/T,540])*(Mgal/yr)/2000 = VOC TPY

Saturation Factor (Submerged Dedicated):	0.6	
* True Vapor Pressure of Liquid Loaded:	8.00	psia
* Molecular Weight of Vapors:	50	
Temperature '(R) @ 100F:	560	

Pollutant	Emission Factor (lb/1000gal)*	Reference	Control Efficiency	Short Term Emissions lb/hr
VOC_{total}	5.34	AP-42	-----	0.5340

Example Calculations:

VOC: (12.46*[(S*P*M)/T,540])*(Mgal/yr) = VOC lb/hr

* Emisssions were calculated using AP-42, Table 5.2.5
* Input data from Fesco Analysis 7-2-09
* Vapor Pressure - AP42 - Table 7.1-2

APPENDIX B – FACILITY DRAFT COMMENTS

The facility had no comments on January 20, 2015.

APPENDIX C – PROCESSING FEE

PTC Fee Calculation

Instructions:
Fill in the following information and answer the following questions with a Y or N. Enter the emissions increases and decreases for each pollutant in the table.

Company: Alta Mesa Services, LP
Address: 4303 Highway 30 South
City: New Plymouth
State: Idaho
Zip Code: 83661
Facility Contact: Kaitlyn Mathews
Title: Petroleum Engineer
AIRS No.: 075-00018

N	Does this facility qualify for a general permit (i.e. concrete batch plant, hot-mix asphalt plant)? Y/N
Y	Did this permit require engineering analysis? Y/N
N	Is this a PSD permit Y/N (IDAPA 58.01.01.205.04)

Emissions Inventory			
Pollutant	Annual Emissions Increase (T/yr)	Annual Emissions Reduction (T/yr)	Annual Emissions Change (T/yr)
NO_X	0.0	0	0.0
SO_2	0.0	0	0.0
CO	0.0	0	0.0
PM10	0.0	0	0.0
VOC	0.0	0	0.0
TAPS/HAPS	0.0	0	0.0
Total:	0.0	0	**0.0**
Fee Due	**$ 1,000.00**		

Comments: