NORTHROP GRUMMAN

July 2, 2020

Bryce C. Bird, Director
Utah Department of Environmental Quality
Division of Air Quality
P.O. Box 144820
Salt Lake City, Utah 84114-4820

Re: Notice of Intent (NOI): Modification to ATK Promontory Approval Order and Title V Operating Permit Number 300003003, Construction of M-726 Carbon Composite Facility

Dear Mr. Bird:

ATK Launch Systems Inc. ("ATK") plans to construct a new facility on the Promontory plant for carbon composite manufacturing. The new facility will be designated M-726. VOC and HAP emissions from the facility will be permitted as an emission reduction and will be detailed in a separate notification. This notice will detail emissions from stainless steel welding/cutting and a diesel-fueled emergency generator.

Process Description

The M-726 facility will be a new carbon composite manufacturing facility located on the north side of the Promontory plant. The facility will use temperature and pressure for the carbonization of composite parts. The expected emission profile is VOC from the carbonization processes, weld fumes, and a diesel fired emergency generator. Fugitive VOCs from general solvent cleaning of parts and tooling will be included under the existing plant wide VOC limit. The emergency generator will be included under the existing hour limit for all plant wide generators.

Specifications for Proposed Equipment

HEPA filtration for weld shop fumes
150 KW diesel fired emergency generator

New Source Performance Standards (NSPS)

No new source performance standards are applicable for emissions from the welding room exhaust. The stationary diesel fired emergency generator is subject to 40 CFR 60 Subpart IIII.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

Applicability of the Metal Fabrication and Finishing Source Nine Categories NESHAP (40 CFR 63 Part XXXXXX (6X) was reviewed for weld shop exhaust. The NESHAP is applicable to area sources that fall into specific source categories and does not pertain to the M-726 facility. The Reciprocating Internal Combustion Engines (RICE) NESHAP (40 CFR 63 Part ZZZZ) does apply to the stationary emergency generator.

Weld Room Fume BACT Analysis

Available Control Technologies for Emissions from Welding Room

Welding fumes contain fine particulates (generally submicron) of hazardous metals. The metals present and quantity of each depends on the material welded, the electrode type and temperature of the welding operation. Gaseous pollutants such as NOx, ozone and carbon monoxide are also likely. The M-726 facility will utilize stainless steel cans during the manufacturing process. Each can is welded to seal parts inside before the operation and then cut open with a plasma cutter once complete. These operations on stainless steel increase the likelihood that chromium will be present in weld fumes. Therefore, emissions from the welding operation will need to be exhausted to maintain safe working conditions for the welder. The expected exhaust rate is 1000 cfm.

Capture and collection systems are the most common control technology to treat emissions from weld shops. Fume hoods, work place extractors and other vacuum systems capture the fumes from the welding work station and vent to a centralized exhaust. The fumes are run through a collection system such as a HEPA filter bank, baghouse and/or electrostatic precipitator prior to being released to atmosphere. The collection system is designed to remove fine particulates that are directly generated from the arc as well as condensable vapors. Three control technologies were evaluated that are capable of treating the exhaust stream before being vented to atmosphere.

HEPA Filtration

HEPA filtration can be very effective at collecting ultrafine particulate matter in weld room exhaust. However, gaseous oxides (nitrogen or carbon oxides) and ozone would not be collected. HEPA filtration provides additional benefit when HAPs or other toxic pollutants are in the exhaust stream. The pollutants are trapped in the filter and disposed intact with minimal disturbance and opportunity to be released again.

Electrostatic Precipitator

Dry electrostatic precipitators are designed to capture charged particulate matter by creating an electromagnetic field capable of drawing the particles out of the exhaust stream. Precipitators are effective for metal particulates but may not be as effective for submicron sizes. Electrostatic precipitators generally have a container that receives particulate released from the collection plates during routine cleaning. Particulate collected must be transferred from the container into a

disposal vessel, unless the precipitator is designed to utilize a collection container that can be disposed of intact. Some reports suggest electrostatic precipitators may have some effectiveness for gaseous pollutants. However, there is no solid values for control efficiency to conclude a measureable benefit can be achieved for NOx, CO, ozone or other gaseous emissions associated with welding fumes.

A drawback of electrostatic precipitators is the amount of energy required to charge the collection plates. Depending on system size, charging the plates can create secondary pollutants (e.g. NOx) in the treated exhaust stream.

Wet Scrubbers

Venturi scrubbers that use a collection liquid have shown to be effective for exhaust streams that contain fine PM and soluble gases. Some effectiveness towards CO and ozone emissions would be expected. PM removal efficiency varies from 70 to 99%. The range is affected by exhaust stream conditions and size fraction of PM. A wet scrubber is not expected to effectively reduce NOx from the exhaust stream due to its low solubility.

Similar to electrostatic precipitators, wet scrubbers require a substantial amount of energy input to treat the exhaust stream. Additionally, collection of the exhaust products in liquid media creates a secondary waste stream of higher mass/volume that can be difficult to dispose of.

Technically Infeasible Options

All of the control technologies identified are technically feasible.

Control Effectiveness

HEPA Filtration

HEPA filtration has high control effectiveness for submicron particles when used in exhaust streams of low to moderate flow rate. The EPA Air Pollution Control Technology Fact Sheet reports removal efficiencies of 99.99+% for particles as small as 0.01 μm for commercial filters and certain exhaust stream characteristics. The Fact Sheet reports a typical filtration efficiency of 99.97% for particle diameters of 0.3 μm and larger. Although very good for particulate control, HEPA filtration is not effective for gaseous oxide (nitrogen or carbon oxides) or ozone removal.

Electrostatic precipitator

Electrostatic precipitators have high control efficiencies for particulate matter and are often used in exhaust streams of moderate to high flow rates, although smaller units are available for localized control. EPA collection efficiency data indicates control efficiencies for particulate matter between 96 and 99% depending on the source material. Although generally effective on

small particles, EPA data suggests submicron particles are the most difficult to collect (EPA Fact Sheet, Dry Electrostatic Precipitators). Additionally, some electrostatic precipitators are sensitive to fluctuating exhaust stream conditions and may not be suitable for weld shop emissions that may start and stop. Newer electrostatic precipitators may have some control effectiveness for gases with sufficient charge and resistivity. However, removal of gases was mainly reported under specific research conditions for tailored applications.

Wet scrubbers

Wet scrubber control efficiency for particulate matter can range between 70 and 99% depending on gas stream characteristics and particle size fraction. A wet scrubber should provide good control for potential carbon monoxide and ozone emissions from weld fumes. However, specific control efficiencies were not found that applied to the expected exhaust gas conditions.

Expected Pollutants in Weld Room Exhaust

Criteria Pollutants:

PM_{10}, $PM_{2.5}$, lead, carbon monoxide, ozone (VOC) and NOx

Volatile Organic Compounds:

None

Hazardous Air Pollutants:

Chromium, chromium IV, nickel, cobalt, manganese.

Emissions Summary

Pollutant	PTE tons/year
$PM_{2.5}$, Total Process	0.02
PM_{10}, Total Process	0.02
SO_2	0.0
NOx	0.01
CO	0.01
CO_2 Total Process	0.0
Lead	0.0
VOCs	0.01
HAPs	0.006

Welding Room Emission Estimates

Potential emissions were calculated using the emission factors published in AP-42 Chapter 12.19 and San Diego Air Pollution Control District.

Welding Emission Estimates

Criteria Pollutants Potential to Emit, PTE

Pollutant	PM_{10}	$PM_{2.5}$	NOx	CO*	VOC (ozone)*
Lbs/year	40.2	40.2	9.4	10.0	10.0

*Estimate based on expected NOx formation rate. No direct emission factors were found.

Hazardous Air Pollutants Potential to Emit, PTE

Pollutant	Cr	Cr VI	Co	Mn	Ni
Lbs/year	6.5	5.5	0.0	1.5	3.8

Calculation Method

AP-42 Chapter 12.19 and San Diego County Air Pollution Control Department emission factors and calculation methods were used to estimate emissions from welding. Plasma cutting emissions were estimated from a publication by the Australian Department of Environment (ADE), "Emission Estimation Techniques for Structural and Fabricated Metal Product Manufacture". Additionally, industry standards were used to estimate weld/cutting rates and the mass of filler wire or electrodes.

Metal workers performing the same operation at a nearly identical facility provided estimates for current filler material usage. The values were scaled for the M-726 facility. An estimated 800 lbs of filler wire per year was estimated for gas tungsten arc welding (GTAW or TIG). An emission calculation sheet from San Diego APCD was used to calculate TIG emissions. 540 lbs per year of E308 electrode for shielded metal arc welding (SMAW) was also expected. AP-42 Tables 12.19-1 and 12.19-2 were used to estimate PM_{10} and HAPs, respectively. All PM_{10} was also assumed to be $PM_{2.5}$.

The ADE emission factors for plasma arc cutting are time based (grams fume/cutting time). Metal cans need to be cut open to remove parts once the carbonization process is complete. The amount of cans processed per year and their diameter was used to estimate the amount of time plasma arc cutting would be in use. The resulting fume emission was assumed to be PM10 and PM2.5. The estimated annual emission was approximately twice that for welding operations. This seems reasonable considering the purpose of cutting is to remove more of the solid material, which likely releases more fumes. Emissions for individual HAPs were estimated from fractions detected in cutting fumes.

BACT Selection for M-726 Weld Room Emissions

An economic assessment was not conducted for this top-down BACT because of the low annual emission rate for the criteria pollutants and HAPs expected (cost per ton of pollutant removal

was high for all). However, the total PTE for chromium is 6.5 lbs/year. Although a low annual value, the expected batch type processing will approach the very low emission threshold values for chromium compounds. The potential impact to local air quality and downwind deposition necessitates the use of a control technology.

HEPA filtration for the weld room exhaust was chosen as the best available control technology. HEPA provides superior removal efficiencies for submicron particulate and entraps particles so handling and secondary release is minimized. This reduces employee exposure to toxic metal HAPs during system maintenance. Typical inline HEPA filtration units require relatively low maintenance and additional energy input compared to electrostatic precipitators and wet scrubbers. Additionally, electrostatic precipitators and wet scrubbers have a higher potential to generate secondary waste streams or air pollution byproducts. A HEPA filtration system will control weld shop chromium emissions well below published emission threshold values.

To compare the selected control technology against similar processes, a search was conducted in the EPA RBLC database for emission controls on welding processes. Several entries were found for controlling PM_{10} and $PM_{2.5}$ emissions from weld shops of different sizes and welding applications. The most recent entry, RBLC-ID: TX-0846, a "cartridge filter system" is listed as the add-on control device for PM10 and PM2.5 emissions from laser welding at a Toyota motor vehicle assembly plant. For a 2017 entry, RBLC-ID: MI-0430, the add-on control was a "baghouse". However, weld shop emissions were combined with other metal fabrication processes for a total exhaust output of 40,000 scfm. Other RBLC entries for weld shops of varying sizes included limitations on rod usage, opacity limits, or promoted good operating practices. Yet, most of the more recent controls all included some type of filtration technology to capture fine particulate. RBLC did not show cases of wet scrubbers being used to control weld shop emissions.

ATK is requesting the M-726 filter system be added to the equipment listed in the Promontory Approval Order. ATK recommends that this equipment be referenced in the Approval Order and Title V Operating Permit as "M-726-HEPA01."

150 KW Diesel Fired Generator BACT Analysis

The proposed unit, newly manufactured in 2020, satisfies EPA's NSPS IIII and MACT ZZZZ emission standards for stationary compression ignition emergency generators (EPA Certificate No. LFPXL06.7DGS-005). Additionally, operation of the new emergency generator will be applicable to the plant wide horsepower-hour limit of 2,144,000 hp-hrs per rolling 12 month period for generators rated less than 600 horsepower.

Table 1. Proposed Emergency Generator Unit

	GENERAC SD150*
kW Rating	150
Horsepower	279
Engine Year	2020
EPA Emission Standard	Tier III

*Actual manufacturer may change based on competitive bidding.

Engine family and characteristics will remain the same.

Table 2. Emissions Summary

	PTE tons/year*
Pollutant	GENERAC SD150, 2020
$PM_{2.5}$ (assumes 94.7% subset of PM10)	0.00
PM_{10}	0.00
NOx	0.09
CO	0.03
CO_2	16

* based off 100 hours/year for maintenance and non-emergency run time.

Technically Infeasible Options for 150 KW Emergency Generator

Gaseous fired engine options (e.g. natural gas, propane) were not considered technically feasible for this project. A natural gas fired engine will be dependent on the plant-wide distribution system and will not provide local control to ensure backup power is available if a safe shutdown is necessary. Propane is used in areas where natural gas is not available. However, there is limited storage and on-plant transport equipment is not available. Diesel is stored at various locations throughout the Promontory plant. Additionally, there are dedicated distribution trucks on-site that can refill tanks in short notice to ensure backup power is available for process contingencies.

ATK is requesting the M-726 diesel fired emergency generator be added to the equipment listed in the Promontory Approval Order. ATK recommends that this equipment be referenced in the Approval Order and Title V Operating Permit as "Generator located in building M-726, 2020, 150 kW, 279 hp. New <500hp".

If you have any questions, please contact Jason Wells at (435) 863-6895
Sincerely

Kris Blauer
Manager, Environmental Services
ATK Launch Systems Inc.

Cc: Tad Anderson

State of Utah
SPENCER J. COX
Governor

DEIDRE HENDERSON
Lieutenant Governor

Department of
Environmental Quality

Kimberly D. Shelley
Executive Director

DIVISION OF AIR QUALITY
Bryce C. Bird
Director

RN160230003

April 8, 2021

Tom Donehue
ATK Launch Systems Inc.
PO Box 707
Brigham City, UT 843020707

Dear Tom Donehue,

Re: Engineer Review:
Modification to Approval Order to DAQE-AN160230001-20 to Combine Permits and Add Building M-726 the Carbon Composite Manufacturing
Project Number: N160230003

The DAQ requests a company representative (Title V Responsible Official for enhanced Approval Order application) review and sign the attached Engineer Review (ER). This ER identifies all applicable elements of the New Source Review permitting program. ATK Launch Systems Inc. should complete this review within **10 business days** of receipt.

ATK Launch Systems Inc. should contact **Tad Anderson** at (385) 306-6515 if there are questions or concerns with the review of the draft permit conditions. Upon resolution of your concerns, please email tdanderson@utah.gov the signed cover letter to Tad Anderson. Upon receipt of the signed cover letter, the DAQ will prepare an ITA for a 30-day public comment period. At the completion of the comment period, the DAQ will address any comments and will prepare an AO for signature by the DAQ Director.

If ATK Launch Systems Inc. does not respond to this letter within **10 business days,** the project will move forward without source concurrence. If ATK Launch Systems Inc. has concerns that cannot be resolved and the project becomes stagnant, the DAQ Director may issue an Order prohibiting construction.

Approval Signature _____
(Signature & Date)

☐ By (Title V responsible official) initialing this box and signing this document, this document serves as an enhanced application and the public comment period will serve as the required comment period for Title V purposes.

The Title V responsible official certifies: based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

UTAH DIVISION OF AIR QUALITY
ENGINEER REVIEW

SOURCE INFORMATION

Project Number	N160230003
Owner Name	ATK Launch Systems Inc.
Mailing Address	PO Box 707 Brigham City, UT, 843020707
Source Name	ATK Launch Systems - Promontory
Source Location	9160 N Hwy 83 Promontory, UT 84302-0689
UTM Projection	380,864 m Easting, 4,611,415 m Northing
UTM Datum	NAD27
UTM Zone	UTM Zone 12
SIC Code	3761 (Guided Missiles & Space Vehicles)
Source Contact	Jason Wells
Phone Number	(435) 863-6895
Email	jason.wells@ngc.com
Project Engineer	Tad Anderson, Engineer
Phone Number	(385) 306-6515
Email	tdanderson@utah.gov
Notice of Intent (NOI) Submitted	July 2, 2020

SOURCE DESCRIPTION

General Description
ATK Launch Systems Inc. (ATK), Promontory site involves the manufacture and testing of solid rocket motor propulsion systems, explosives, flare illuminants, and composite materials. Reclamation activities are also conducted for the reuse of excessed rocket motor components and propellant. The site consists of the following sources: boilers, emergency generators, operations using VOC compounds, production testing, rocket motor testing and open burning/open detonation (OBOD). The Promontory site is located in a rural area of Box Elder County approximately 20 miles northwest of Brigham City, Utah.

NSR Classification:
Minor Modification at Major Source

Source Classification
Located in Northern Wasatch Front O3 NAA, Salt Lake City UT $PM_{2.5}$ NAA,
Box Elder County
Airs Source Size: A

Applicable Federal Standards
NSPS (Part 60), A: General Provisions
NSPS (Part 60), IIII: Standards of Performance for Stationary Compression Ignition Internal Combustion Engines
NESHAP (Part 61), A: General Provisions
NESHAP (Part 61), M: National Emission Standard for Asbestos
MACT (Part 63), A: General Provisions
MACT (Part 63), ZZZZ: National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

Project Proposal
Modification to Approval Order to DAQE-AN160230001-20 to Combine Permits and Add Building M-726 the Carbon Composite Manufacturing

Project Description
ATK has requested to install and operate the M-726 facility. The M-726 Facility consist of a new carbon composite manufacturing operation. This operation uses temperature and pressure for the carbonization of composite parts. The operation consists of welding operations, solvent cleaning of parts and an emergency generator. The welding operation emissions will be captured by fume hoods and then controlled by a HEPA filter. The solvent cleaning operations will be conducted as R307-304 and the emissions will be combined into the 75 TPY VOC limit. The emergency generator has the design capacity of 279 hp. The Emergency Generator AO (DAQE-AN0100090133-16) only list emergency generators with a capacity of 600 hp or greater. This generator will fall into miscellaneous emergency generators category of less than 600 hp and is not individually be listed in this permit.

As part of this modification, the Emergency Generator AO (DAQE-AN0100090133-16) has been combined into this AO (Process Equipment AO). The emissions from the Emergency Generators AO have been incorporated into Process Equipment PTE but are not considered an emissions increase. Limits from the Emergency Generator AO have been updated. The tracking of horsepower hours limit has been updated to current standards. The emergency generator

opacities have included into the sitewide opacity limitation. The diesel fuel sulfur conditions have been updated. All limits for the emergency generator (757 hp) located in Building M-016 have been removed. The Building M-016 emergency generator will be operated as all other emergency generators on site.

EMISSION IMPACT ANALYSIS

Modeling is not required as R307-410-4 and R307-410-5. The emission rate increase from the new Carbon Composite Manufacturing is 0.02 TPY of PM10, 0.02 TPY of PM2.5, 0.01 TPY of NOx, 0.01 TPY of CO, 0.01 TPY of VOC, and 0.01 TPY of combined HAPs. The 0.01 combined HAPs are broken down into 0.195 lb/yr of Chromium, 0.165 lb/yr of Hexavalent Chromium, 0.045 lb/yr of Manganese, 0.114 lb/yr of Nickel. [Last updated March 17, 2021]

SUMMARY OF EMISSIONS

The emissions listed below are an estimate of the total potential emissions from the source. Some rounding of emissions is possible.

Criteria Pollutant	Change (TPY)	Total (TPY)
CO_2 Equivalent	0	7230.95
Carbon Monoxide	0.01	64.75
Nitrogen Oxides	0.01	52.25
Particulate Matter - PM_{10}	0.02	189.23
Particulate Matter - $PM_{2.5}$	0.02	10.94
Sulfur Oxides	0	3.53
Volatile Organic Compounds	0.01	81.68

Hazardous Air Pollutant	Change (lbs/yr)	Total (lbs/yr)
2,4-Toluene Diisocyanate (CAS #584849)	0	100
Cadmium (CAS #7440439)	0	20
Chloroform (CAS #67663)	0	4000
Chromium Compounds (CAS #CMJ500)	0	20
Chromium III (CAS #16065831)	0	20
Chromium Oxide (CAS #1333820)	0	20
Chromium VI (CAS #18540299)	0	20
Cobalt Compounds (CAS #CNB850)	0	20
Ethyl Benzene (CAS #100414)	0	4000
Formaldehyde (CAS #50000)	0	4000
Generic HAPs (CAS #GHAPS)	20	3960
Hexamethylene-1,6-Diisocyanate (CAS #822060)	0	1200
Hydrazine (CAS #302012)	0	20
Methanol (CAS #67561)	0	6000
Methyl Chloroform (1,1,1-Trichloroethane) (CAS #71556)	0	20000
Methyl Isobutyl Ketone (Hexone) (CAS #108101)	0	3000
Methylene Chloride (Dichloromethane) (CAS #75092)	0	38000
Phenol (CAS #108952)	0	30000
Toluene (CAS #108883)	0	6000
Trichloroethylene (CAS #79016)	0	2000
Xylenes (Isomers And Mixture) (CAS #1330207)	0	16000
	Change (TPY)	**Total (TPY)**
Total HAPs	0.01	69.20

Note: Change in emissions indicates the difference between previous AO and proposed modification. The Change does not reflect the increases for the addition of the emergency generator AO or new emergency generator.

Review of BACT for New/Modified Emission Units

1. **BACT review regarding Building M-726**

A BACT analysis was submitted for the Carbon Composite Manufacturing which consists of welding operations, solvent cleaning of parts, and an emergency generator. Each operation had an analysis submitted for the pollutants emitted.

The BACT analysis for the welding operations took into consideration collection of the fumes and then routed to either a HEPA filtration, an electrostatic precipitator, or a wet scrubber. The fumes for the welding operations contain fine particulates of hazardous metals and some gaseous pollutants. ATK has elected to construct a fume hood and route the welding emissions to a HEPA filter. The HEPA filter has the highest control efficiency (99.97+% for particles as small as 0.3-micron diameters and larger) of all the control devices.

BACT for welding operations is the fumes to be routed to a HEPA filter and a 10% opacity.

BACT for the solvent cleaning is good housekeeping practices and following UAC R307-304, "Solvent Cleaning".

The BACT analysis for the emergency generator with a maximum power rating of 150 kW (279 hp). The proposed diesel-fired emergency generator will be certified per 40 CFR 89.112 as specified in NSPS Subpart IIII. The emergency generator engines will be limited to 100 hours of use for maintenance and testing, in accordance with requirements of 40 CFR 63 Subpart ZZZZ and 40 CFR 60 Subpart IIII.

Available add-on control technologies include selective catalytic reduction, non-selective catalytic reduction, NO_x adsorption, diesel fuel particulate filters, and diesel oxidation catalysts. Due to the intermittent operations of these engines, these add-on technologies are not technically or economically feasible.

DAQ considers the following measures as BACT for the emergency generator engines:
1. Use ultra-low sulfur diesel fuel (15 ppm by weight or less).
2. Conduct
Manufacturer recommended maintenance and testing.
3. Limit visible emissions to 20 % opacity.
4. Compliance with applicable MACT/NSPS requirements.
[Last updated March 30, 2021]

SECTION I: GENERAL PROVISIONS

The intent is to issue an air quality AO authorizing the project with the following recommended conditions and that failure to comply with any of the conditions may constitute a violation of the AO. **(New or Modified conditions are indicated as "New" in the Outline Label):**

I.1	All definitions, terms, abbreviations, and references used in this AO conform to those used in the UAC R307 and 40 CFR. Unless noted otherwise, references cited in these AO conditions refer to those rules. [R307-101]

I.2	The limits set forth in this AO shall not be exceeded without prior approval. [R307-401]
I.3	Modifications to the equipment or processes approved by this AO that could affect the emissions covered by this AO must be reviewed and approved. [R307-401-1]
I.4	All records referenced in this AO or in other applicable rules, which are required to be kept by the owner/operator, shall be made available to the Director or Director's representative upon request, and the records shall include the two-year period prior to the date of the request. Unless otherwise specified in this AO or in other applicable state and federal rules, records shall be kept for a minimum of two (2) years. [R307-401-8]
I.5	At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any equipment approved under this AO, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Director which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source. All maintenance performed on equipment authorized by this AO shall be recorded. [R307-401-4]
I.6	The owner/operator shall comply with UAC R307-107. General Requirements: Breakdowns. [R307-107]
I.7	The owner/operator shall comply with UAC R307-150 Series. Emission Inventories. [R307-150]
I.8	The owner/operator shall submit documentation of the status of construction of the operations in Building M-726 to the Director within 18 months from the date of this AO. This AO may become invalid if construction is not commenced within 18 months from the date of this AO or if construction is discontinued for 18 months or more. To ensure proper credit when notifying the Director, send the documentation to the Director, attn.: NSR Section. [R307-401-18]

SECTION II: PERMITTED EQUIPMENT

The intent is to issue an air quality AO authorizing the project with the following recommended conditions and that failure to comply with any of the conditions may constitute a violation of the AO. **(New or Modified conditions are indicated as "New" in the Outline Label):**

II.A THE APPROVED EQUIPMENT

II.A.1	**Rocket Plant** Process Equipment
II.A.2	**Building E-512** Dust Collectors DC01, DC02 and DC03 Paint Booths PB01, PB02

II.A.3	**Building E-516** Paint Booth PB01
II.A.4	**Building E-517** Cyclone-Baghouse DC02 Cyclone DC03 Paint Booth PB01
II.A.5	**Building E-529** Paint Booth PB01
II.A.6	**Building I-005** Baghouses DC01
II.A.7	**Building S-503** Propane-fired Burn-off Oven with afterburner OV01
II.A.8	**Building M-005** Dust Collectors DC01 and DC02
II.A.9	**Building M-006** Dust Collector DC01
II.A.10	**Building M-066B** Dust Collector DC01
II.A.11	**Building M-008** Dust Collectors DC01 and DC02
II.A.12	**Building M-008A** Dust Collectors with HEPA Filters DC01 and DC02
II.A.13	**Building M-013** Dust Collectors with HEPA Filter DC01 and DC05 Dust Collectors DC02, DC03 and DC04

II.A.14	**Building M-043** Dust Collector DC01 Paint Booth PB01
II.A.15	**Building M-052** Dust Collector DC01 Paint Booths PB01, PB02, and PB03
II.A.16	**Building M-053** Dust Collector DC01 Cyclone-Baghouse DC03
II.A.17	**Building M-068** Paint Booth PB01
II.A.18	**Building M-079** Paint Booths PB01
II.A.19	**Building M-086** Baghouse DC01 Cyclone DC02 Fume Hood with HEPA Filter FH01 Paint Booths PB01
II.A.20	**Building M-103** Dust Collector DC01
II.A.21	**Building M-111** Paint Booths PB01, PB02, and PB03
II.A.22	**Building M-113** Dust Collectors DC01, DC02 and DC04 Paint Booths PB01

II.A.23	**Building M-145** Baghouse DC01
II.A.24	**Building M-174** Dust Collector with HEPA Filter DC01 Wet Scrubber DC02
II.A.25	**Building M-179** Dust Collectors DC01, DC02, DC03 and DC04
II.A.26	**Building M-218** Baghouses with HEPA Filter DC01
II.A.27	**Building M-314** Dust Collectors with HEPA Filters DC01, DC02, DC03, DC04, DC05, DC06, DC07, DC08, DC09 and DC10
II.A.28	**Building M-397** Dust Collectors DC01 and DC02 Paint Booths PB01
II.A.29	**Building M-508** Dust Collectors DC01, DC02, DC03, DC04 and DC05 Paint Booths PB01, PB02, and PB03
II.A.30	**Building M-512** Dust Collectors DC01
II.A.31	**Building M-585** Dust Collector DC03
II.A.32	**Building M-606** Dust Collectors DC01, DC02, DC03 and DC04
II.A.33	**Building M-702** Baghouse with HEPA Filter DC01

II.A.34	**Building M-726 (New)** Welding Operations Controls: HEPA Filters (HEPA01)
II.A.35	**Building A-001** Emergency Generator Fuel Type: Diesel Max. Capacity: 1340 hp
II.A.36	**Building A-001B** Emergency Generator Fuel Type: Diesel Max. Capacity: 1474 hp
II.A.37	**Building M-016** Emergency Generator Fuel Type: Diesel Max. Capacity: 757 hp
II.A.38	**Building M-021** Emergency Generator Fuel Type: Diesel Max. Capacity: 900 hp
II.A.39	**Building M-199** Emergency Generator Fuel Type: Diesel Max. Capacity: 900 hp
II.A.40	**Building M-315** Emergency Generator Fuel Type: Diesel Max. Capacity: 900 hp
II.A.41	**Building M-422** Emergency Generator Fuel Type: Diesel Max. Capacity: 890 hp
II.A.42	**Building M-427** Emergency Generator Fuel Type: Diesel Max. Capacity: 1586 hp
II.A.43	**Building M-515** Grandfathered Emergency Generator Fuel Type: Diesel Max. Capacity: 432 hp

II.A.44	**Building M-516** Grandfathered Emergency Generator Fuel Type: Diesel Max. Capacity: 432 hp
II.A.45	**Building M-639** Grandfathered Emergency Generator Fuel Type: Diesel Max. Capacity: 432 hp
II.A.46	**Building M-640** Grandfathered Emergency Generator Fuel Type: Diesel Max. Capacity: 432 hp
II.A.47	**Building M-641** Grandfathered Emergency Generator Fuel Type: Diesel Max. Capacity: 432 hp
II.A.48	**Building M-642** Grandfathered Emergency Generator Fuel Type: Diesel Max. Capacity: 432 hp
II.A.49	**Small Stationary IC Engines** Miscellaneous diesel and gasoline fired internal combustion engines less than 600 hp.
II.A.50	**Miscellaneous Vacuum pumps**

SECTION II: SPECIAL PROVISIONS

The intent is to issue an air quality AO authorizing the project with the following recommended conditions and that failure to comply with any of the conditions may constitute a violation of the AO. **(New or Modified conditions are indicated as "New" in the Outline Label):**

II.B REQUIREMENTS AND LIMITATIONS

II.B.1	**Site Wide Requirements**

II.B.1.a NEW	Visible emissions from any point or fugitive emission source associated with the operations listed in this AO shall not exceed the following values: A. All abrasive blasting operations-40% opacity, except for an aggregate period of three minutes in any one hour B. All paint spray booths-10% opacity C. All dust collectors-10% opacity D. All cyclones-10% opacity E. All Fume Hoods-10% opacity F. Silicone Room Exhaust-10% opacity G. All Ovens-10% opacity H. All Diesel Fired Emergency Generators - 20% opacity I. All Grandfathered Diesel Fired Emergency Generators - 40% opacity. [R307-401-8]
II.B.1.a.1	Opacity observations of emissions from stationary sources shall be conducted in accordance with 40 CFR 60, Appendix A, Method 9. [R307-401-8]
II.B.1.b NEW	ATK shall inspect the HEPA filter banks in Building M-702 and M-726 every six months to verify that there are no holes or tears in the filter media and that the filters are installed correctly. [R307-401-8]
II.B.1.b.1	Records of HEPA filter bank inspections shall be kept for all periods when the plant is in operation. HEPA filter bank inspections shall be determined by supervisor maintaining an inspection log. [R307-401-8]
II.B.1.c	All blasting operations shall comply with the abrasive blasting requirements of UAC R307-206. [R307-206]
II.B.2	**VOC and HAP Requirements**
II.B.2.a	The emissions of VOC and HAPs from all operations located in the designated buildings in this AO, that have VOC and HAP emissions associated with their operation shall not exceed: 75.0 tons of VOC per rolling 12-month period 0.05 tons of 2,4-Toluene Diisocyanate per rolling 12-month period 0.5 tons of 4,4-Methylenebiphenyl per rolling 12-month period 2.0 tons of Chloroform per rolling 12-month period 0.01 tons of Chromium (VI) per rolling 12-month period 0.03 tons of Chromium Compounds per rolling 12-month period 2.00 tons of Ethyl Benzene per rolling 12-month period 2.00 tons of Formaldehyde per rolling 12-month period 0.6 tons of Hexamethylene Diisocyanate per rolling 12-month period 3.0 tons of Methanol per rolling 12-month period 10.0 tons of Methyl Chloroform (TCA) per rolling 12-month period 1.5 tons of Methyl Isobutyl Ketone per rolling 12-month period 19.0 tons of Methylene Chloride (MeCl) per rolling 12-month period 15.0 tons of Phenol per rolling 12-month period 3.0 tons of Toluene per rolling 12-month period 1.0 tons of Trichloroethylene per rolling 12-month period 8.0 tons of Xylenes per rolling 12-month period. [R307-401-8]

II.B.2.a.1	Compliance with each limitation shall be determined on a rolling 12-month total. Based on the twentieth day of each month, a new 12-month total shall be calculated using data from the previous 12 months. [R307-401-8]
II.B.2.a.2	VOC and HAP emissions shall be determined by maintaining a record of VOC and HAP emitting materials used each month. The record shall include the following data for each material used: A. Name of the VOC and HAPs emitting material, such as: paint, adhesive, solvent, thinner, reducers, chemical compounds, toxics, isocyanates, etc. B. Density of each material used (pounds per gallon) C. Percent by weight of all VOC and HAP in each material used D. Gallons of each VOC and HAP emitting material used E. The amount of VOC and HAP emitted monthly by each material used shall be calculated by the following procedure: VOC = (% VOC by Weight/100) x [Density (lb/gal)] x Gal Consumed x 1 ton/2000 lb HAP = (% HAP by Weight/100) x [Density (lb/gal)] x Gal Consumed x 1 ton/2000 lb F. The amount of VOCs or HAPs reclaimed for the month shall be similarly quantified and subtracted from the quantities calculated above to provide the monthly total VOC or HAP emissions. [R307-401-8]
II.B.3	**Sulfuric Acid Tank Requirements**
II.B.3.a	ATK shall install, calibrate, maintain, and operate a monitoring device for the continuous measurement of the operating temperature of the sulfuric acid tank in the aluminum anodizing process (Building E 517). When the Anodizing Process is in operation, the operating temperature of the sulfuric acid tank shall not be more than 75 degrees F for more than five minutes and the sulfuric acid concentration shall not be more than 276 gram/liter. [R307-401-8]
II.B.3.a.1	The monitoring device for the temperature must be certified by the Manufacturer to be accurate within plus or minus 5 degrees F and must be calibrated on an annual basis in accordance with the manufacturer's instructions. When the anodizing process is being operated, the temperature of the sulfuric acid tank shall be recorded at a minimum of once per calendar day and the sulfuric acid tank shall be sampled at a minimum of once each week for sulfuric acid concentration following the approved procedures in Standard Laboratory Procedure 538 (SLP-538) dated September 27, 1982 and submitted to DAQ on August 31, 2009. [R307-401-8]

II.B.3.a.2	Records of temperature and acid concentration shall be kept on site. ATK shall also record any calculations used to compute concentrations. Records of Manufacturer's instructions, certification of accuracy, and calibration results shall be kept on-site. Records shall include: 1) Date of monitoring and calibration 2) Date analyses were performed. 3) Company or entity that performed the analyses. 4) Analytical techniques or methods used. 5) Results of such analyses. [R307-401-8]
II.B.4	**Emergency Generators Engine Limitations**
II.B.4.a	The operation of the emergency generators shall not exceed the following limits: A.. 1,474,000 horsepower-hours (hp-hrs) of non-emergency operation per rolling 12-month period on the emergency generators greater than 600 hp per rolling 12-month period. B. 2,144,000 hp-hrs of non-emergency operation per rolling 12-month period on the emergency generators that are rated at 600 hp or less. C. 100 hours of operation per emergency generator for non-emergency situations per rolling 12-month period for each emergency generator covered by this AO. [R307-401-8]
II.B.4.a.1	To determine compliance with a rolling 12-month total, the owner/operator shall calculate a new 12-month total by the 20th day of each month using data from the previous 12 months. Records documenting the operation of the emergency engine shall be kept in a log and shall include the following: A. The date the emergency engine was used B. The duration of operation in hours C. The reason for the emergency engine usage. [40 CFR 60 Subpart IIII, 40 CFR 63 Subpart ZZZZ]
II.B.4.a.2	To determine the duration of operation, the owner/operator shall install a non-resettable hour meter for the emergency engine. [40 CFR 60 Subpart IIII, 40 CFR 63 Subpart ZZZZ]
II.B.5	**Sulfur Fuel Limitations**
II.B.5.a	The owner/operator shall only use diesel fuel (e.g. fuel oil #1, #2, or diesel fuel oil additives) as fuel in the emergency generator engines. [R307-401-8]
II.B.5.b	The owner/operator shall only combust diesel fuel that meets the definition of ultra-low sulfur diesel (ULSD), which has a sulfur content of 15 ppm or less. [R307-401-8]
II.B.5.b.1	To demonstrate compliance with the ULSD fuel requirement, the owner/operator shall maintain records of diesel fuel purchase invoices or obtain certification of sulfur content from the diesel fuel supplier. The diesel fuel purchase invoices shall indicate that the diesel fuel meets the ULSD requirements. [R307-401-8]

PERMIT HISTORY

When issued, the approval order shall supersede (if a modification) or will be based on the following documents:

Supersedes	DAQE-AN160230001-20 dated August 24, 2020
Is Derived From	NOI Dated dated July 2, 2020
Supersedes	DAQE-AN100090133-16 dated December 19, 2016

REVIEWER COMMENTS

1. **Comment regarding Permit PTE with combined AOs:**
DAQ combined the emergency generator AO (DAQE-AN100090133-16) with the process equipment AO. The emissions for the emergency generator AO, existing process equipment AO, project emission increases and new process equipment are broken down as follows:

	DAQE AN160230001-20 TPY	DAQE AN100090133-16 TPY	Welding TPY	Emergency Gen. TPY	permit change TPY	new AO TPY
PM10	185.51	3.7	0.02	0.00	0.02	189.23
PM2.5	7.33	3.59	0.02	0.00	0.02	10.94
NOx	0.35	51.89	0.01	0.09	0.01	52.25
CO	0.25	64.49	0.01	0.03	0.01	64.75
SOx	0.01	3.52	0.00	0.00	0.00	3.53
VOC	75.00	6.67	0.01	0.00	0.01	81.68
Lead	0.30	0	0.00	0.00	0.00	0.30
HAPs	69.19	0.08	0.01	0.00	0.01	69.28
GHGs	5142.59	2088.36	0.00	16.00	0.00	7,230.95

Emergency generator emissions are not included in the permit changes since emissions are included into the hp-hr limit in the permit.

[Last updated April 8, 2021]

2. **Comment regarding Emission Estimates:**
Emission Estimates
The Carbon Composite Manufacturing in building M-726 consists of welding operations, solvent cleaning of parts and an emergency generator.

The estimated emission for the welding operations in building M-726 used emissions factors from AP-42 Chapter 12.19 and San Diego Air Pollution Control District with a HEPA filter control efficiency of 99.97% for metal particulates.

The solvent cleaning operations in building M-726 did not have any emissions estimates submitted in the NOI. The solvent cleaning emissions will be captured in the 75 TPY VOC limit in this permit.

The estimated emission for new generator in building M-726 used emission factors from AP-42 Manufacturer's data and AP-42. The emissions are based upon 100 hours of operation for non-

emergency operations. [Last updated April 8, 2021]

3. **Comment regarding Reorganization of Equipment:**
UDAQ has restructured the equipment list so the buildings equipment will be in building numerical sequence. The emergency generators have been added grouped together towards the bottom of the equipment list. [Last updated April 8, 2021]

4. **Comment regarding Site ID:**
ATK has switched site ID's from 10009 to 16023. The 10009 site ID became unusable within the database and had to be switched. All permit will be changed to the new site ID as they get modified. [Last updated April 8, 2021]

5. **Comment regarding Applicable Regulations:**
Consolidating the Emergency Generator AO into the Process Equipment AO will add two additional federal requirements to the Process Equipment AO. The Process Equipment AO is now subject to 40 CFR 60 IIII and 40 CFR 63 ZZZZ.

ATK reviewed the welding operations to determine the applicability to 40 CFR 63 Subpart XXXXXX (6X). The welding operations in building M-726 do not meet the requirements to make this operation subject to Subpart XXXXXX. [Last updated April 8, 2021]

6. **Comment regarding Emergency Generator in Building M-726:**
The Carbon Composite Manufacturing consists of the addition of an emergency generator (279 hp). The existing emergency generator AO has limited the emergency generators listed in the equipment list to 600 hp and greater. The new emergency generator is not listed in the equipment list since it falls below this existing listing limit. The new emergency generator is subject to 40 CFR 60 IIII, 40 CFR 63 ZZZZ, and the 2,144,000 hp-hrs of non-emergency operation per rolling 12-month period limit. [Last updated April 8, 2021]

7. **Comment regarding Emergency Generator:**
All limits for the emergency generator (757 hp) located in Building M-016 have been removed. The limits for the emergency generator in building M-016 are same limits in listed in the "Emergency Generator Engine Limitations" section. The Building M-016 emergency generator will be operated as all other emergency generators on site. [Last updated April 8, 2021]

8. **Comment regarding Emergency Generator Emissions:**
Emergency generator emissions are not included in this permit modification since the hours of operation for the new emergency generator will be included into the existing 2,144,000 hp-hr limit in the permit. [Last updated April 8, 2021]

ACRONYMS

The following lists commonly used acronyms and associated translations as they apply to this document:

40 CFR	Title 40 of the Code of Federal Regulations
AO	Approval Order
BACT	Best Available Control Technology
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CDS	Classification Data System (used by EPA to classify sources by size/type)
CEM	Continuous emissions monitor
CEMS	Continuous emissions monitoring system
CFR	Code of Federal Regulations
CMS	Continuous monitoring system
CO	Carbon monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent - 40 CFR Part 98, Subpart A, Table A-1
COM	Continuous opacity monitor
DAQ/UDAQ	Division of Air Quality
DAQE	This is a document tracking code for internal UDAQ use
EPA	Environmental Protection Agency
FDCP	Fugitive dust control plan
GHG	Greenhouse Gas(es) - 40 CFR 52.21 (b)(49)(i)
GWP	Global Warming Potential - 40 CFR Part 86.1818-12(a)
HAP or HAPs	Hazardous air pollutant(s)
ITA	Intent to Approve
LB/HR	Pounds per hour
LB/YR	Pounds per year
MACT	Maximum Achievable Control Technology
MMBTU	Million British Thermal Units
NAA	Nonattainment Area
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standards for Hazardous Air Pollutants
NOI	Notice of Intent
NO_x	Oxides of nitrogen
NSPS	New Source Performance Standard
NSR	New Source Review
PM_{10}	Particulate matter less than 10 microns in size
$PM_{2.5}$	Particulate matter less than 2.5 microns in size
PSD	Prevention of Significant Deterioration
PTE	Potential to Emit
R307	Rules Series 307
R307-401	Rules Series 307 - Section 401
SO_2	Sulfur dioxide
Title IV	Title IV of the Clean Air Act
Title V	Title V of the Clean Air Act
TPY	Tons per year
UAC	Utah Administrative Code
VOC	Volatile organic compounds