



air pollution control district  
SANTA BARBARA COUNTY

January 31, 2022

Via Email  
Read Receipt Requested

Amy Estrella  
Lockheed Martin - SB Focalplane  
336 Bollay Drive  
Goleta, CA 93117

**Re: Conditional Approval of 2018 ATEIP and ATEIR for Lockheed Martin - SB Focalplane Air Toxics “Hot Spots” Information and Assessment Act (AB 2588)**

Dear Ms. Estrella:

The Santa Barbara County Air Pollution Control District (District) has reviewed your Air Toxics Emission Inventory Plan (ATEIP) for inventory year 2018 and your Air Toxics Emission Inventory Report (ATEIR) dated February 9, 2021. Based on our review of this plan, the District *conditionally approves* the ATEIR and the revised ATEIP subject to changes noted in the Attachment.

Please submit a final ATEIP, ATEIR and response letter by June 30, 2022. In addition, a response to ATEIP Comment No. 16 is due March 2, 2022. The only changes that should be made to the final ATEIP and ATEIR are itemized in the Attachment. Contact the District for approval for any additional changes that may be necessary (beyond minor corrections such as spelling, grammar, etc.).

The response letter must include a response to each Conditional Approval item in the Attachment. In addition, for ease of review, please submit a Track Changes version of the final ATEIP/R that shows all changes from the revised submittal dated February 9, 2021. Tracking changes for the spreadsheet is not required. However, as noted above, only approved changes and minor error corrections should be made.

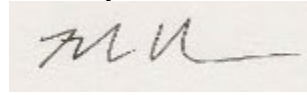
Please submit the health risk assessment (HRA) and HRA report by June 30, 2022. The HRA should implement the Modeling Protocol Tables and *Lockheed Martin Missiles and Fire Control Santa Barbara Focalplane Health Risk Assessment Protocol* submitted with the ATEIP (with any revisions required by the Conditional Approval). A complete list of requirements for the HRA and HRA report are included in Form-15i, the District’s *Modeling Guidelines for Health Risk Assessments* (<https://www.ourair.org/wp-content/uploads/apcd-15i.pdf>).

Electronic copies of the final ATEIP and ATEIR, response letter, HRA and HRA report should be sent via email to [CobbsR@sbcapcd.org](mailto:CobbsR@sbcapcd.org) or be made available to the District to download.

Aeron Arlin Genet, Air Pollution Control Officer

If you have any questions or require additional information, please contact me at [CobbsR@sbcapcd.org](mailto:CobbsR@sbcapcd.org).

Sincerely,

A handwritten signature in black ink on a light-colored background. The signature appears to be 'RC' followed by a horizontal line.

Robin Cobbs  
Engineering Division

cc: Lockheed Martin - SB Focalplane Project File  
Lockheed Martin - SB Focalplane Toxics File  
Toxics Group  
Engr Chron File

Attachment: ATEIP/R Conditional Approval Items

\\sbcapcd.org\shares\Toxics\ActiveSourceFiles\SSID09313Lockheed\_Martin\AB 2588 IY 2018\Conditional Approval of 2018 ATEIR and Final ATEIP for Lockheed IY 2018.docx

**Lockheed Martin - SB Focalplane – Conditional Approval Items for  
2018 ATEIR and Revised ATEIP**

**ATEIP Comments**

*Numbering from Conditional Approval Letter dated July 2, 2020*

1. – 11. No further action required.
12. No further action required for ATEIP. However, see comment on operation schedule for ATEIR.
13. – 15. No further action required.
16. The figure provided in Appendix I of the ATEIP shows an isolation valve between the vacuum deposition chamber and the pump. If the chamber is isolated prior to reaching the evaporation temperature of the metal and while the shutter is still closed, you may assume negligible emissions from this process. However, if the pump continues to operate when the metal has reached the evaporation temperature and the shutter opens, then emissions must be quantified. To determine the emissions, you may either source test or conservatively use Santa Barbara Research Center's (SBRC) emission methodology for vacuum deposition, as provided in our July 2, 2020 letter. Within 30 days of this letter, clarify whether the chamber is isolated prior to reaching the evaporation temperature and provide the following:
  - a. If the chamber is isolated, provide the temperature at which the isolation valve closes and the chamber is isolated. In addition, confirm that the shutter does not open until the isolation valve separates the chamber from the pump.
  - b. If the chamber is not isolated, clarify if you will be source testing the process or will be using SBRC's emission calculation methodology. If you will be source testing, provide a source test plan for this process.
17. No further action required.

**Lockheed Martin - SB Focalplane – Conditional Approval Items for  
2018 ATEIR and Revised ATEIP**

**ATEIR Comments**

**Operation Schedule**

1. Inconsistent Operation Schedule. For the devices listed below, the operating schedule on the *Usage* tab of the spreadsheet, *Material Calculations\_2-8-21 for SBCAPCD.xlsx*, does not match the schedule shown in Attachment B of the HRA Protocol. (There was no change in the schedule shown in the March 2020 version and the February 2021 version of Attachment B of the HRA Protocol, but the schedule shown in the ATEIR spreadsheet is not consistent with Attachment B of the HRA Protocol.) Please make the following revisions:
  - a. DID 386942, Fume Hood #30: Attachment B shows 14 hr/day for a total 3640 hr/yr; the *Usage* tab shows 13 hr/day for a total of 3380 hr/yr. AECOM's October 5, 2021 emailed response (from Vincenzo Ciancia to Robin Cobbs, RE: *Draft Comments on ATEIP/R for Lockheed*) indicated that DID 386942 operated for 13 hr/day for a total of 3380 hr/yr. Please update Attachment B and the variable emissions scenario accordingly.
  - b. DID 108661, Dewar Paint Booth: Attachment B shows 9 hr/day for a total of 936 hr/yr; the *Usage* tab shows 14 hr/day for a total of 1456 hr/yr. AECOM's October 5, 2021 emailed response indicated that DID 108661 operated for 14 hr/day for a total of 1456 hr/yr. Please update Attachment B and the variable emissions scenario accordingly.
  - c. DID 109062, Fume Hood #23: Attachment B shows 9 hr/day for a total of 936 hr/yr; the *Usage* tab shows 14 hr/day for a total of 1456 hr/yr. AECOM's October 5, 2021 emailed response indicated that DID 109062 operated for 2 hr/day for a total of 624 hr/yr. Please update the *Usage* tab, Attachment B and the variable emissions scenario accordingly.
  - d. DID 386222 Fume Hood #32: Attachment B shows 0.75 hr/day for a total of 195 hr/yr; the *Usage* tab shows 2 hr/day for a total of 624 hr/yr. AECOM's October 5, 2021 emailed response indicated that DID 386222 is operated for 2 hr/day for a total of 520 hr/yr. Please update the *Usage* tab, Attachment B and the variable emissions scenario accordingly.
  - e. DID, 250 Detector Physics Bench top chemical usage: Attachment B shows 0.2 hr/day for a total of 10 hr/year; the *Usage* tab shows 9 hr/day for a total of 468 hr/yr. AECOM's October 5, 2021 emailed response indicated DID 250 operated for 9 hr/day for a total of 468 hr/yr. Please update Attachment B and the variable emissions scenario accordingly.
2. Old Operating Schedule. The operating schedule for DID 65, Logitech Wafer Bonder, was updated in the February 2021 version of Attachment B of the HRA Protocol based on comments from the District's July 2, 2020 letter. However, the *Usage* tab reflects the hours from the March 2020 version of Attachment B of the HRA Protocol. AECOM's October 5, 2021 emailed response clarified that DID 65, Logitech Wafer Bonder, operated for 1.4 hr/day, 0.5 days/week, 52 weeks/year, 36.4 hr/year and that no changes are required to the variable emission scenario 346-12. Please update Attachment B accordingly.

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### **Lockheed Martin - SB Focalplane – Conditional Approval Items for 2018 ATEIR and Revised ATEIP**

3. Incorrect Operation Schedule. The operating schedule shown on the *Usage* tab for Cold Shield Cleaning System, DID 387724, does not reflect the operating schedule described in response to ATEIP Comment 12.r. (Variable Emissions for DID 387724) and the February 2021 version of Attachment B of the HRA Protocol. AECOM's October 5, 2021 emailed response clarified that DID 387724, Cold Shield Cleaning System, operated for 9 hr/day, 5 days/week, 52 weeks/year, 2340 hr/year. Please update Attachment B and the variable emission scenario accordingly.

#### **Differences between Usage tab and 2 Data Summary tab**

4. Material: Cho-Therm 1642, Part B. Please update the ATEIR as specified in AECOM's October 5, 2021 emailed response.
5. Material: Loctite SF 7471 Primer. Please update the ATEIR as specified in AECOM's October 5, 2021 emailed response.
6. Material: 3M Scotch-Weld Epoxy Adhesive 2216 Gray Part A. Please update the ATEIR as specified in AECOM's October 5, 2021 emailed response.
7. Material: 3M Scotch-Weld Epoxy Adhesive 2216 Gray Part B. Please update the ATEIR as specified in AECOM's October 5, 2021 emailed response.
8. Material: Ultra Flat Black 1602. Please update the ATEIR as specified in AECOM's October 5, 2021 emailed response.

#### **Minor Errors**

9. Material: AZ 1529 Photoresist. The specific gravity is inconsistent. The specific gravity for most pollutants/devices for this material is 1.038. However, the specific gravity for 2-Methoxy-1-propyl acetate for DID 386227 is shown as 1.07. Furthermore, the Safety Data Sheet (SDS) shows the density is 1.06 g/cm<sup>3</sup> at 77 °F. Please update the ATEIR as specified in AECOM's October 5, 2021 emailed response.
10. Material: 3M Scotch-Weld Epoxy Adhesive 2216 Gray Part A. The *Usage* tab shows the specific gravity in column N (titled "SG") as 1.1. However, the SDS shows the specific gravity as 1.26. Please update the ATEIR as specified in AECOM's October 5, 2021 emailed response.
11. Material: 2-Propanol. The SDS shows that isopropanol is greater than 95 percent. However, the *Usage* tab uses 95 percent instead of 100 percent in column U (titled "PERC"). Please update the ATEIR with the weight percentage of 100 percent as specified in AECOM's October 5, 2021 emailed response.
12. Material: Toluene. The SDS shows that toluene is greater than 99 percent. However, the *Usage* tab uses 99 percent instead of 100 percent in column U (titled "PERC"). Please update the ATEIR with the weight percentage of 100 percent as specified in AECOM's October 5, 2021 emailed response.

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**Required Revisions**

13. Material: Shell Diala AX. The District agrees to the proposed emission calculation methodology for this product as described in AECOM's email dated January 6, 2022. The documentation from Shell verified that the mixture contains less than 0.1 weight percent benzene, toluene, ethyl benzene, xylene, chlorobenzene, naphthalene and trimethyl benzene. Furthermore, the documentation provided in AECOM's email dated December 28, 2021 (from Vincenzo Ciancia to Robin Cobbs, RE: *Draft Comments on ATEIP/R for Lockheed*) for the 95 percent control efficiency of the Airflow Systems Mist-Pac filter is acceptable. The emission calculation methodology did not provide a capture efficiency and did not provide documentation of the hazard waste manifests for the waste shipped offsite. However, due to the low toxicity of the product, the District will not require a revision to the proposed emission calculation methodology. Please be advised that if a product with a higher toxicity is used for this process in the future, the District may require an updated emission calculation methodology for future inventory years. Please update the ATEIR with the emission calculation methodology in the spreadsheet *Shell Diala AX Emission Calculations\_1-6-22.xlsx* provided in AECOM's January 6, 2022 email (from Vincenzo Ciancia to Robin Cobbs, RE: *Draft Comments on ATEIP/R for Lockheed*).
14. "STACKID" and "TYPE" on the *Usage* tab. Please update the ATEIR as specified in AECOM's October 5, 2021 emailed response.
15. Material: Epoxy Enamel 463-3-8. Based on AECOM's October 5, 2021 emailed response, the District accepts the proposed emission calculation and removal efficiency of 80 percent. Please note that this approval is conditional for only this low usage (2.25 gallon/year) and specific material with the low weight percent of crystalline silica (1 percent). For future inventory years, the District may require an updated emission calculation methodology if the product usage increases substantially or you change products. Please update the ATEIR as specified in AECOM's October 5, 2021 emailed response.
16. The *Usage* tab shows emission calculations with the resulting annual and hourly emissions included for several materials that do not have emissions, according to the ATEIP. Please update the *Usage* tab as specified in AECOM's October 5, 2021 emailed response for each of the materials below:
  - a. Bondline 2106.
  - b. 44 Flux-Cored Lead Solder.
  - c. Thermal Grease T660.
  - d. Blue Ice 414.
17. Laser Welder 2, DID 114537. Please update the ATEIR as specified in AECOM's October 5, 2021 emailed response.
18. Nickel from JST TiNi Bench, DID 50. Please update the ATEIR as specified in AECOM's October 5, 2021 emailed response.

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- 19. DICE Operations. Please update the annual usage based on maintenance and testing only, as described in AECOM’s October 5, 2021 emailed response.
- 20. Hexavalent chromium. Please correct the CAS number as specified in AECOM’s October 5, 2021 emailed response.
- 21. Material: Silver Gold Alloy Wire – items 1051561 and 1051560. Please update the ATEIR as specified in AECOM’s October 5, 2021 emailed response.

**Required Revisions for ATEIR pdf document, 2018 ATEIR for SBAPCD 2-9-21.pdf**

- 22. Section 4.2.2.5. The hourly ammonia emissions from Fume Hood #13 and Fume Hood #25 are incorrect in the pdf, *2018 ATEIR for SBAPCD 2-9-21.pdf*, and do not match the *Usage* tab of *Material Calculations 2-8-21 for SBCAPCD.xlsx*. Correct the hourly ammonia emissions in Section 4.2.2.5 of the pdf of the ATEIR.

2018 Air Toxics Emissions Inventory Report (Facility ID 09424)

4.2.2.5 Emission Calculations

Emissions from the Fume Hoods reported in this section are reported in the table below.

Device	Material	Annual Usage (lb/yr)	A82588 Ingredient	Operating hours (hr/yr)	Average Annual Emissions (lb/year)	Average Hourly Emissions (lb/hr)	Maximum Hourly Emissions (lb/hr)
Fume Hood #10	Buffer Solution pH 4.0	5.515	Formaldehyde	1300	0.0027573	0.0000021	0.0000032
			Methanol	1300	0.0011029	0.0000008	0.0000013
	Buffer Solution pH 7.0	5.515	Sodium hydroxide	1300	0.0055146	0.0000042	0.0000064
Fume Hood #13	Ammonia (Ammonium Hydroxide dissociation)	123.68	Ammonia	43.29	0.0208	0.0312	43.29
Fume Hood #25	Ammonia (Ammonium Hydroxide dissociation)	123.68	Ammonia	43.29	0.8325	1.2487	43.29

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23. Section 5.1.8.5. The emission rate for three pollutants emitted from the Camera Lab Benchtop chemical usage appear to be incorrect as shown in the screenshot below. Specifically, the pollutants and emission rates for E-6000 Clear, Isopropanol – Isopropyl Alcohol, and Loctite Ablestik 2151-H do not match the *Usage* tab. Correct the pollutants and emission rates in Section 5.1.8.5 of the pdf of the ATEIR.

2018 Air Toxics Emissions Inventory Report (Facility ID 09424)

5.1.8.5 Emission Calculations

Emissions from units reported in this section are reported in the table below.

Device	Material	Annual Usage (lb/yr)	AB2588 Ingredient	Operating hours (hr/yr)	Average Annual Emissions (lb/year)	Average Hourly Emissions (lb/hr)	Maximum Hourly Emissions (lb/hr)
Camera Lab Benchtop chemical usage	186 Soldering Flux	1.22	Isopropyl alcohol	78	0.86	1.10E-02	1.65E-02
	DOWSIL 280A Adhesive	0.34	Isopropyl alcohol	1404	0.8573	6.11E-04	9.16E-04
			Ethyl benzene	1404	0.0341	2.43E-05	3.64E-05
			Isopropyl alcohol	1404	0.0136	9.71E-06	1.46E-05
			Toluene	1404	0.0005	3.89E-07	5.83E-07
	E-6000 Clear	1.98	Xylenes	1404	0.1091	7.77E-05	1.17E-04
	Isopropanol - Isopropyl Alcohol	58.06	Perchloroethylene {Tetrachloroethene}	1404	1.4858	1.06E-03	1.59E-03
LOCTITE ABLESTIK 2151-H	0.01	Isopropyl alcohol	1404	58.0568	4.14E-02	6.20E-02	

24. Section 5.3.1.4. The usage and emission rates for 2-Propanol from the JST Indium LO Bench do not match the *Usage* tab of the ATEIR. Correct the usage and emission rates in Section 5.3.1.4 of the pdf of the ATEIR.

5.3.1.4 Emission Calculations

Emissions from the units reported in this section are reported in the table below.

Device	Material	Annual Usage (lb/yr)	AB2588 Ingredient	Operating hours (hr/yr)	Average Annual Emissions (lb/year)	Average Hourly Emissions (lb/hr)	Maximum Hourly Emissions (lb/hr)
JST Indium LO Bench	2-Propanol	167.10	Isopropyl alcohol	2080	17.30	0.0083	0.0125
JST TINI Bench	Isopropanol - Isopropyl Alcohol	58.06	Isopropyl alcohol	8736	6.33	0.0007	0.0011
	Nickel	0.3674	Nickel	8736	0.04	4.58E-06	6.88E-06