AFRL-2023-5678

Interim Report, Missile Community Cancer Study, F.E. Warren Air Force Base, Round 1 Results

Lt Col Scott M. Boyd
Occupational & Environmental Health Department

Report Date
8 November 2023

NOTICE AND SIGNATURE PAGE

Using Government drawings, specifications, or other data included in this document for any purpose other than Government procurement does not in any way obligate the U.S. Government. The fact that the Government formulated or supplied the drawings, specifications, or other data does not license the holder or any other person or corporation; or convey any rights or permission to manufacture, use, or sell any patented invention that may relate to them.

Qualified requestors may obtain copies of this report from the Defense Technical Information Center (DTIC) (http://www.dtic.mil).

AFRL-2023-5678 has been reviewed and is approved for publication in accordance with assigned distribution statement.

BOYD.SCOTT.M.1298312030 Digitally signed by BOYD.SCOTT.M.1298312030 Date: 2023.11.08 13:32:55 -05'00'

SCOTT M. BOYD, Lt Col, USAF, BSC
Chief Consulting Executive
Occupational and Environmental Health Department

This report is published in the interest of scientific and technical information exchange and its publication does not constitute the Government's approval or disapproval of its ideas or findings.

REPORT DOCUMENTATION PAGE

PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ORGANIZATION.

1. REPORT DATE	2. REPORT TYPE	3. DATES COVERED	
8 November 2023	CONSULTATIVE LETTER	START DATE 5 JULY 2023	END DATE 8 NOV 2023

4. TITLE AND SUBTITLE
Interim Report, Missile Community Cancer Study, F.E. Warren Air Force Base, Round 1 Results

5a. CONTRACT NUMBER	5b. GRANT NUMBER	5c. PROGRAM ELEMENT NUMBER
5d. PROJECT NUMBER	5e. TASK NUMBER	5f. WORK UNIT NUMBER

6. AUTHOR(S)
Capt Leigh M. Durden, Occupational and Environmental Health Department

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
Air Force Research Laboratory, 711th Human Performance Wing
U.S. Air Force School of Aerospace Medicine, Occupational & Env. Health Dept
2510 Fifth St., Bldg. 840
Wright-Patterson AFB, OH 45433-7913

8. PERFORMING ORGANIZATION REPORT NUMBER
AFRL-2023-5678

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)
Air Force Research Laboratory, 711th Human Performance Wing
U.S. Air Force School of Aerospace Medicine, Occupational & Env. Health Dept
2510 Fifth St., Bldg. 840
Wright-Patterson AFB, OH 45433-7913

10. SPONSOR/MONITOR'S ACRONYM(S)

11. SPONSOR/MONITOR'S REPORT NUMBER(S)
AFRL-2023-5678

12. DISTRIBUTION/AVAILABILITY STATEMENT
DISTRIBUTION A. Clearance number is AFRL-2023-5678. Approved for public release: distribution is unlimited. 8 November 2023. Other requests shall be referred to DCPH-D/OEC, 2510 Fifth St., Bldg. 840, Wright-Patterson AFB, OH 45433-7913

13. SUPPLEMENTARY NOTES

14. ABSTRACT
At the request of the Air Force Global Strike Commander (AFGSC/CC), the United States Air Force School of Aerospace Medicine (USAFSAM) Defense Centers for Public Health-Dayton (DCPH-D) Occupational and Environmental Health Department Consultative Services Division (OEC) performed an environmental health survey for all fifteen Missile Alert Facilities (MAFs) at F.E. Warren AFB, WY. The assessment was completed from 5 to 15 July 2023 and included area air sampling, direct reading instrument (DRI) air monitoring, swipe sampling, drinking water sampling, and soil sampling. This survey was performed to characterize and document potential personnel exposures to environmental hazards in the MAFs. The purpose of this memo is to convey survey results received from four civilian and military laboratories.

15. SUBJECT TERMS
Missile Community Cancer Study, F.E. Warren AFB

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES
a. REPORT Unclassified	b. ABSTRACT Unclassified	C. THIS PAGE Unclassified	Unclassified	135

19a. NAME OF RESPONSIBLE PERSON	19b. PHONE NUMBER (Include area code)
Capt Leigh Durden	(937) 938-3297

PREVIOUS EDITION IS OBSOLETE.

STANDARD FORM 298 (REV. 5/2020)
Prescribed by ANSI Std. Z39.18

DEPARTMENT OF THE AIR FORCE
711TH HUMAN PERFORMANCE WING (AFRL)
WRIGHT-PATTERSON AIR FORCE BASE OHIO

8 November 2023

MEMORANDUM FOR: AFGSC/SGPB
ATTN: Lt Col Raymond Mak

FROM: DCPH-D/OE
2510 Fifth Street, Building 840
WPAFB OH 45433-7913

SUBJECT: Consultative Letter, AFRL-2023-5678, Missileer Cancer Study, F.E. Warren Air Force Base (AFB) Round I Results

References: (a) Emily C. Arceo, *Technical Guide for Indoor Air Quality Surveys* (OH: Air Force Research Laboratory, 2014), pp 4, 6 & 9.

(b) American Conference of Governmental Industrial Hygienists, *2023 Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices* (OH: ACGIH, 2023), 19.

(c) American Conference of Governmental Industrial Hygienists, *2001 Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices* (OH: ACGIH, 2001).

(d) William E. Luttrell, Kenneth R. Still, Jeffrey A. Church, and Leslie A. Beyer, *Toxicology Principles for the Industrial Hygienist* (Second Edition) (VA: AIHA, 2019).

(e) Kyoung Jin Kim, Sinyoung Shin, and Jaekyng Choi, *Cancer Risk from Exposure to Particulate Matter and Ozone According to Obesity and Health-Related Behaviors: A Nationwide Population-Based Cross-Sectional Study* (MD: NIH, 2019).

(f) Environmental Protection Agency, *Volatile Organic Compounds' Impact on Indoor Air Quality*. (Washington, D.C.: EPA, 2023).

(g) Environmental Protection Agency, *Recognition and Management of Pesticide Poisonings (Sixth Edition)* (Washington, D.C.: EPA, 2013), 43.

(h) National Institute of Health, *Organophosphate Insecticide Use and Cancer Incidence Among Spouses of Pesticide Applicators in the Agricultural Health Study*, (MD: 2015).

(i) Agency for Toxic Substances and Disease Registry, *Polychlorinated Biphenyls ToxFAQs* (GA: ATSDR, 2014).

(j) National Archives, *40 CFR 761.61* (Washington, D.C.: CFR, 2023).

(k) Lin Liu, Zhu Rao, Yuan Wang, Hamidreza Arandiyan, Jie Gong, Ming Liang, and Feng Guo, *Characteristics and Health Risk Assessment of Semi-Volatile Organic Contaminants in Rural Pond Water of Hebei Province* (MD: NIH, 2019).

(l) G. M. Jones and J. A. Vale, *Mechanisms of Toxicity, Clinical Features, and Management of Diquat Poisoning: A Review* (MD: NIH, 2000).

(m) Centers for Disease Control and Prevention, *Facts About Paraquat* (GA: CDC, 2018).

(n) Sue Kyung Park, Daehee Kang, et al, *Cancer Incidence Among Paraquat-Exposed Pesticide Applicators in the Agricultural Health Study* (MD: NIH 2016).

(o) Environmental Protection Agency, *Paraquat Dichloride* (Washington, D.C.: EPA, 2023).

(p) Environmental Protection Agency, *Learn about Dioxin* (Washington, D.C.: EPA, 2023).

(q) Agency for Toxic Substances and Disease Registry, *Chlorinated Dibenzo-p-Dioxins (CDDs)* (GA: ATSDR, 1999).

(r) International Agency for Research on Cancer, Dioxin Revisited: Developments Since the 1997 IARC Classification of Dioxin as a Human Carcinogen (FR: IARC, 2004).

(s) Agency for Toxic Substances and Disease Registry, *ToxFAQs for Nitrate and Nitrite* (GA: ATSDR, 2017).

(t) Agency for Toxic Substances and Disease Registry, *What are the Health Effects from Exposure to Nitrates and Nitrites* (GA: ATSDR, 2023).

1. INTRODUCTION

At the request of the Air Force Global Strike Commander (AFGSC/CC), the United States Air Force School of Aerospace Medicine (USAFSAM) Defense Centers for Public Health-Dayton (DCPH-D) Occupational and Environmental Health Department Consultative Services Division (OEC) performed an environmental health survey for all fifteen Missile Alert Facilities (MAFs) at F.E. Warren AFB, WY. The assessment was completed from 5 to 15 July 2023 and included area air sampling, direct reading instrument (DRI) air monitoring, swipe sampling, drinking water sampling, and soil sampling. This survey was performed to characterize and document potential personnel exposures to environmental hazards in the MAFs. The purpose of this memo is to convey survey results received from four civilian and military laboratories.

A. Survey Personnel:

(1) Capt Leigh Durden, Environmental Health Consultant, DCPH-D/OEC

(2) Capt Isabella Muffoletto, Occupational Health Consultant, DCPH-D/OEC

(3) TSgt Nia Curry, Director, Bioenvironmental Engineering Apprentice Course, DCPH-D/Occupational & Environmental Development (OED)

(4) TSgt Katerine Harris, Occupational & Environmental Health (OEH) Technician, DCPH-D/OEC

(5) SSgt Enock Koech, OEH Technician, DCPH-D/OEC

B. Personnel Contacted:

(1) Lt Col Donella Beaulieu, 90th Operational Medical Readiness Squadron (OMRS) Commander

(2) Capt Ariel Serrano, 90th OMRS Bioenvironmental Engineering Flight Commander

(3) 1st Lt Cassidy Isch, 90th Medical Support Squadron Medical Logistics Technician

(4) SSgt Joseph Bahr, 90th OMRS Bioenvironmental Engineering Flight Chief

C. Equipment Used:

(1) Thermo-System Engineering Incorporated (TSI) VelociCalc Meter: Ventilation air velocity and pressure differential

(2) TSI Indoor Air Quality Meter: Temperature, humidity, carbon monoxide, carbon dioxide

(3) Forensics Detectors Ozone Meter

(4) HACH DR900 Colorimeter: pH, Total Chlorine, Free Available Chlorine in water

(5) Scientific Kit Corporation (SKC) Air Sampling Pumps

(6) MESA LABS Air Sampling Pump Calibrator

(7) Ancillary equipment including sterile containers and other items to facilitate sample collection and analysis

2. BACKGROUND

Following a March 2023 site visit to address cancer concerns in the missileer community, USAFSAM/DCPH-D performed the first round of environmental sampling at all MAFs at F.E. Warren AFB, WY. The sampling plan targeted potential carcinogens which potentially affect MAF personnel through dermal, ingestion, and inhalation pathways. The potential health hazards sampled for will be discussed in the health hazard summary in the following section.

The missile squadrons included in this survey are the 319th, 320th, and 321st each comprised of five MAFs at F.E. Warren AFB. The 319th Missile Squadron is responsible for MAFs Alpha through Echo, the 320th Missile Squadron is responsible for Foxtrot through Juliet and the 321st Missile Squadron is responsible for Kilo through Oscar. MAFs are of similar construction where the Topside Support Building consists of bedrooms, common areas, offices and a kitchen and the Launch Control Center (LCC) is completely underground with access by an elevator. The Launch Control Equipment Building (LCEB) which stores ancillary equipment and generators is also underground and is connected to the LCC by a hallway. When activated, the LCCs are manned twenty-four hours per day, seven days per week, three hundred sixty-five days a year with two-person crews that operate the LCC for twenty-four hours at a time. The crews work seven straight days followed by two weeks back at base in which the LCC is manned by other two-person crews. The LCCs are periodically deactivated for maintenance.

3. HEALTH HAZARD SUMMARY

This section details the potential health hazards in the MAFs and LCCs. The survey includes indoor air quality (IAQ) parameters like temperature, relative humidity and carbon dioxide that can indicate comfort levels in a workplace, as well as suspected carcinogens that could be found in the air, soil, and water. All samples were used to characterize and identify potential hazards in the work centers. Some of the chemicals (organophosphates and diquat/paraquat, for example) sampled for were selected due to the geographic location of the MAFs on or near agricultural land and the historical presence of these chemicals used near the MAFs.

3.1 INDOOR AIR QUALITY (IAQ)

3.1.1 CARBON MONOXIDE

Carbon monoxide is an odorless gas and can cause fatigue, drowsiness, nausea, headache, and difficulty breathing. It is formed from combustion from equipment inside a building or vehicles running outside the air intake vent of the building (Arceo, 2014). Carbon monoxide is also naturally produced in the human body. People who smoke are vulnerable to increased levels of carbon monoxide within their body. The American Conference of Governmental Industrial Hygienists (ACGIH) established a Threshold Limit Value (TLV) as an 8-hour time-weighted average (TWA) of twenty-five parts-per-million for carbon monoxide (ACGIH, 2023). TLVs are ACGIH health-based standards which establish levels of exposures that workers can be exposed to without adverse health effects while TWAs are airborne chemical concentrations for a conventional eight-hour workday and forty-hour workweek (Ibid, 2023). The TLV for carbon

monoxide is intended to maintain blood carboxyhemoglobin (COHb) levels below 3.5%, to minimize the potential for adverse neurobehavioral changes, and to maintain cardiovascular work and exercise capacities (ACGIH, 2001). Furthermore, this TLV provides a margin of safety for workers particularly susceptible to the adverse effects of carbon monoxide exposure, including pregnant workers (i.e., the fetus) and those with chronic heart and respiratory diseases (Ibid, 2001).

Carbon monoxide poisoning prevents the body from absorbing enough oxygen and has the potential to lead to unconsciousness, coma, and death. Although not linked to cancer, sampling for carbon monoxide serves two purposes: (1) assess direct exposure to MAF occupants; and (2) assess the effectiveness of MAF ventilation systems.

3.1.2 CARBON DIOXIDE

Carbon dioxide is a gas released by human exhalation. If inadequate fresh air or "make-up" air is available within a building, carbon dioxide can accumulate indoors. Carbon dioxide is not considered a health risk at high levels, but symptoms of concentrations exceeding 600 parts-per-million can include headache, drowsiness, difficulty concentrating, and dizziness (Arceo, 2014). The Bioenvironmental Engineering Technical Guide for IAQ Surveys further reflects maximum levels to carbon dioxide should not exceed one-thousand parts-per-million (Ibid, 2014). Although not linked to cancer, sampling for carbon dioxide serves three purposes: (1) assess direct exposure to MAF occupants; (2) assess the effectiveness of MAF ventilation systems; and (3) assess MAF structural integrity which potentially indicates a need for DCPH-D/OE to expand the current environmental sampling strategy.

3.1.3 OZONE

Ozone is a colorless gas that can be emitted directly by urban and industrial processes, but also forms in the atmosphere by chemical reactions between nitrogen oxides and volatile organic compounds (VOCs). Ozone is also used as a bleaching agent for pulp and paper. Ozone affects the lower respiratory system and exposure limits are based on work activity levels (light, moderate, and heavy work activity) as respiratory rates increase, the potential for ozone reaching the deep lung also increases (Luttrell et al., 2019). The ACGIH established a TLV for light work recommending airborne ozone exposures are limited to 0.1 parts-per-million. Symptoms of excessive exposure to ozone include fatigue, dizziness, headache, and decreased concentration, motor activity, and cognitive response (Ibid, 2019). Although inconclusive, increased ozone levels have been linked to an increase in cancer risk (Kim, et al., 2019).

3.1.4 TEMPERATURE AND RELATIVE HUMIDITY

Temperature and humidity recommendations are set by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) and are based on comfort of the occupants as opposed to health risk. ASHRAE recommends temperatures of 68°F – 74°F in cold seasons and 72°F – 80°F during warm seasons. Relative humidity below 40% is commonly associated with building occupant discomfort and dissatisfaction. Symptoms due to abnormal relative humidity can include dry nose and throat, nose bleeds, sinus and throat irritation, and dry eyes. Long term exposure to low relative humidity can also contribute to respiratory illness via

weakening pulmonary mucous membrane defense (Arceo, 2014). Although not linked to cancer, analyzing temperature and relative humidity assesses MAF ventilation systems which can be used to facilitate changes to DCPH-D/OE's current environmental sampling strategy.

3.2 VOLATILE ORGANIC COMPOUNDS (VOCs)

VOCs are a group of substances that have a high vapor pressure and low water solubility. This makes them able to easily change from a liquid or solid to a gaseous state which increases the potential for human exposure via inhalation. Exposure limits for VOCs are unique to each chemical. They are commonly found in both industrial environments and household products such as cleaning supplies, varnishes, and pesticides (Environmental Protection Agency, 2023). Over fifty VOCs were sampled for at each MAF. Health effects from VOC exposure vary from eye, nose and throat irritation, headaches to damage to the liver kidney and central nervous system (Ibid, 2023). VOCs can accumulate in an indoor setting and affect the quality of indoor air. Considering some VOCs have been confirmed or suspected to cause cancer in humans (Ibid, 2023), air samples were collected to test for VOCs within the MAFs.

3.3 ORGANOPHOSPHATES

Organophosphates are a type of insecticide or pesticide commonly used in agriculture, homes, and gardens. Several organophosphates are highly toxic and can potentially cause acute (sudden) or subacute (rapid) toxicity (Environmental Protection Agency, 2013). Various organophosphates were sampled for in the air, soil, and water. These compounds have varying exposure limits or maximum contaminant levels (MCLs) although their human health effects are similar. Acute symptoms from organophosphates exposure includes diarrhea, excessive salivation, and constriction of pupils. Acute and subacute symptoms include fluid accumulation in the respiratory tract as well as central nervous system effects such as tremors, delirium, loss of coordination, and convulsions (Luttrell et al., 2019). Organophosphates (specifically malathion, diazinon, dichlorvos, parathion, and tetrachlorvinphos) have been deemed possible carcinogens or probable carcinogens by The International Agency for Research on Cancer (IARC) and/or the United States Environmental Protection Agency (EPA) (National Institute of Health, 2015). Air, water, and soil samples were collected to test for organophosphate compounds due to MAF locations adjacent to agricultural land.

3.4 POLY CHLORINATED BIPHENYLS (PCBs)

PCBs are synthetic organic chemicals used for a variety of industrial and commercial purposes. They were commonly used in the fluid in electrical components, capacitors, and transformers. PCBs were developed in the 1940's and used through the late 1970's. In the late 1970's, they were banned because of evidence that determined PCBs accumulate in the environment and may be toxic to humans and wildlife. PCBs remain present in electrical components of equipment in the LCCs because of their capability to insulate and regulate equipment temperatures (Agency for Toxic Substances and Disease Registry, 2014). 40 Code of Federal Regulations (CFR) 761.61 establishes a standard for PCB spills to be cleaned to ten micrograms per one hundred square centimeters (10 µg/100 cm^2) (National Archives, 2023). The EPA has classified PCBs as a probable human carcinogen. Many of the cancer concerns

from LCC occupants originated with concerns from PCB exposures. Furthermore, PCB stickers across all LCCs were not standardized and MAF occupants reported past incidences of known PCB leaks. Due to LCC equipment containing PCBs, swipe, air, and water samples were collected to test for PCBs.

3.5 SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)

SVOCs are persistent pollutants in soils and aquatic environments which can be transported over long distances and accumulate in organisms (Liu et al., 2019). SVOCs can be found in many pesticides, oil-based products, and flame retardants. Exposure limits for SVOCs are unique to each chemical yet have similar adverse health effects on the human body. Over sixty SVOCs were analyzed for in the water and their respective MCLs can be found in the results tables in the Appendices. Some SVOCs could cause cancer, reproductive disorders, nervous system damage, and immune system disruption (Ibid, 2019). Considering concerns with carcinogenic effects, SVOC water samples were collected within the MAFs.

3.6 DIQUAT/PARAQUAT

Diquat and paraquat compounds are herbicides used in agriculture and homes, although diquat is utilized less in agriculture than paraquat (Jones and Vale, 2000). Paraquat was first produced for commercial purposes in 1961 and is one of the most used herbicides worldwide (Centers for Disease Control and Prevention, 2018). The EPA has set a MCL for diquat at 0.02 milligrams per liter. While no paraquat MCL exists, the EPA requires mitigation measures with paraquat to reduce risks to human health and the environment (EPA, 2023). Health effects from diquat and paraquat exposure include gastrointestinal symptoms and heart, liver, and kidney failure (Centers for Disease Control and Prevention, 2018). Herbicides have the potential to remain present in environments surrounding MAFs due to MAF proximity to agricultural land which use herbicides. Considering the National Institute of Health reports potential links between diquat/paraquat and elevated rates of non-Hodgkin's lymphoma (National Institute of Health, 2016), water samples were collected to test for diquat/paraquat.

3.7 DIOXINS

Dioxins are persistent organic pollutants found throughout the world that can take a long time to break down once in the environment. They can bioaccumulate resulting in greater than 90% of typical human exposure to be via dietary intake of animal, dairy and fish products (EPA, 2023). Dioxins can be found in the water from air emissions due to burning of waste or other combustion sources (Ibid, 2023). The EPA has established a MCL of thirty picograms per liter for 2,3,7,8-Tetrachlorodibenzodioxin. Exposure to 2,3,7,8-Tetrachlorodibenzodioxin results in severe skin disease and acne-like skin lesions (Agency for Toxic Substances and Disease Registry, 1999). Variations of dioxins have been banned for use inside the United States. The dioxin 2,3,7,8-Tetrachlorodibenzodioxin is deemed a human carcinogen by the World Health Organization (IARC, 2004). In the 1980s, 2,3,7,8-Tetrachlorodibenzodioxin was banned from use within the United States. Due to dioxins ability to attach to soil and settle in sediment water, dioxins have the potential to remain present in environments surrounding MAFs. Therefore, samples were collected to test for dioxins in drinking water.

3.8 NITRATE/NITRITE

Fertilizers and animal waste can contain nitrogen increasing the concentration of nitrate in water sources. Per the Agency for Toxic Substances and Disease Registry (ATSDR), nitrate-containing compounds in the soil can easily dissolve in water making them easy to migrate into groundwater (ATSDR, 2017). Nitrite is more easily oxidized than nitrate, therefore nitrate is more commonly found in groundwater and surface waters. The EPA has established a MCL of ten milligrams per liter for total nitrates and nitrites as nitrogen. Excessive nitrate or nitrite exposure can cause blood disorders and are classified by IARC as "probably carcinogenic to humans" (ATSDR, 2023). Due to the location of most MAFs near agricultural land, water samples were collected to test for nitrite and nitrate.

4. METHODOLOGY & ANALYSIS

This section summarizes sampling plans utilized to ensure proper collection, analysis, and validity of results. Detailed sampling plans for each potential health hazard sampled will be included in the final report. National Institute for Occupational Safety and Health (NIOSH) and EPA approved methods were used to develop sampling plans and execute sample analysis. Laboratory analysis was used to run five methods for water sampling, three methods for air sampling, one method for PCB swipe sampling, and one method for soil sampling. The individual methods for sampling can test for multiple analytes or chemical compounds. The tables in the appendices of this report contain sample type, location, analyte, result, and applicable detection limit. Except for soil, which was collected outside of the MAFs, all samples were collected in both the LCC and in the Topside Support Building. A summary of analytical methods and number of samples taken for each method can be found in Table 1. Samples were shipped from F.E. Warren AFB to four civilian and military analytical laboratories to conduct the analysis. DCPH-D/OE validated results as they were received from the laboratories.

4.1 WATER

Sample locations at each MAF were the kitchen sink in the Topside Support Building and the bathroom sink in the LCC. In accordance with EPA sampling methods, screen aerators were removed, and the water was flushed for five minutes prior to sample collection. After sample collection, samples were immediately stored to meet required temperature parameters defined in the analytical method. Three samples for each method were taken at the two specified locations: (1) the sample, (2) matrix spike, and (3) matrix spike duplicate. Matrix spike and matrix spike duplicates are quality-control samples used to evaluate the performance of the analytical method by measuring the effect on interferences caused by the sample matrix – water in this case. Matrix spike and matrix spike duplicates were spiked with a required, known amount of the analyte and run through the analytical method by the labs. The lab calculates the percent recovery of the spike which must fall within parameters to ensure sample results are not affected by interferents.

4.2 AIR

Air sampling quantifies the concentration of analytes within the volume sampled. Area air samples were collected to characterize the background indoor air environment in the MAFs. DCPH-D/OE used three different methods to analyze for sixty-eight analytes consisting of organophosphates, PCBs, and VOCs in each of the fifteen MAFs. The following area air samples were collected for each method:

- Organophosphate: eight- and two-hour samples in the LCC and eight- and two-hour samples in the Topside Support Building. Two-hour sampling was conducted because one of the chemicals analyzed in the method had a lower maximum collection volume that would be exceeded if sampled for eight hours.
- PCB: eight-hour sample in the LCC and eight-hour sample in the Topside Support Building.
- VOCs: eight-hour sample in the LCC and eight-hour sample in the Topside Support Building.

In addition to the area air samples collected at each MAF, field and media blanks were also analyzed. Media blanks are never exposed to the environment and are used to ensure there is no contamination of media during the equipment/media manufacturing and handling processes. Field blanks are opened to the environment to assess any initial contamination that may have occurred prior to any tested air that would have flowed through the sample media.

Eight-hour area air samples were collected to minimize missile crew rest interruption. The two-man crew is in the LCC for twenty-four hours where each crew member will have crew rest for about eight hours. The remaining time is spent in the crew members' seat in front of their visual display console. Considering missileers are not performing any processes that would change LCC conditions, an eight-hour area sample can appropriately characterize a twenty-four-hour alert shift.

4.3 SOIL

To determine the presence of organophosphates, six grab samples were collected eight to twelve inches below the soil surface at each MAF. Samples were collected at each corner, outside of the MAF restricted area fence line to establish background concentrations. Additionally, a sample was collected near the air intake vent where dirt can potentially enter the MAF ventilation system. The sixth soil sample location was selected at random within the MAF fence line.

4.4 PCB SWIPES

Swipe sampling was conducted to determine the presence/absence of PCBs. A total of twenty swipes were collected in each MAF at locations historically known to contain PCBs (e.g., panels, transformers, & batteries) as well as commonly touched areas and equipment (e.g., display screens, keyboards, doorknobs/levers & elevator buttons). Surfaces of a ten centimeter by ten-centimeter (100 cm^2) area were swiped horizontally and vertically within the same location, side to side, up and down. When possible for equipment being swiped, both a surface swipe and ground level or underside swipe was taken to determine the presence/absence of PCB.

Table 1: Summary of Analytical Methods and Sample Quantity for each Potential Health Hazard

Potential Health Hazard	Lab (Location)	Analytical Method	Matrix	No. of Samples (per MAF)	No. of Samples (per base)
PCBs	Eurofins (South Bend, IN)	EPA 505	Water	6	90
Total Nitrate/Nitrite as N	Aberdeen (Aberdeen Proving Ground, MD)	NECi N07-0003	Water	6	90
Pesticides/SVOCs	Eurofins	EPA 525.2	Water	6	90
Diquat/Paraquat	Eurofins	EPA 549.2	Water	6	90
Dioxin	Aberdeen	EPA 1613B	Water	6	90
VOCs	Bureau Veritas North America (Fort Lauderdale, FL)	EPA TO 17	Air	4	60
Organophosphates	Bureau Veritas North America	NIOSH 5600	Air	6	90
PCBs	Bureau Veritas North America	NIOSH 5503	Air	4	60
PCB Swipe Sampling	Summit (Cuyahoga Falls, OH)	EPA 8082A	Surface	20	300
Organophosphates	Summit	EPA 1699	Soil	6	90

5. RESULTS & DISCUSSION

This section summarizes the findings of all samples collected at F.E. Warren AFB. Sample results were received from the laboratories and checked for quality assurance and control. Any results that came back above a standard were immediately communicated and released to AFGSC/SG. All results for each MAF received from the laboratories are documented in the appendices of this report. Each MAF's results can be found as its own appendix, Appendix Alpha through Appendix Oscar. Non-Detects (ND) mean the result was below the laboratory's limit of detection (LOD) for that specific method. The appendices may document occurrences when the laboratory's reported LOD exceeded the associated health limit for a given analyte. If/when this occurs, DCPH-D/OE will characterize the analyte health risk by considering revisions to the Round 3 sampling strategy. Any samples that broke during shipment or processing at the laboratory will be resampled during Round 2 of this project.

5.1 PCB SWIPE SAMPLING

Swipe sampling for PCBs were compared to the 40 CFR 761 standard of ten micrograms per one hundred square centimeters (10 µg/100 cm^2). Seventeen swipes in nine LCCs had detectable surface levels of PCBs. All three hundred swipe samples collected revealed PCB levels below the limits mandated by 40 CFR 761. These results were expediated to AFGSC/SG via the F.E. Warren PCB memorandum dated on 15 August 2023. A full list of all swipe locations at each MAF and results can be found as Tables 1A – 1O in the Appendices.

5.2 AIR SAMPLING

All PCB and organophosphate area air sampling in the LCC and Topside Support Building were below laboratory limits of detection. The two-hour area air sampling using method NIOSH 5600 for organophosphates only analyzed for malathion as seen in Table 3 of the Appendices.

VOC air sampling results detected trace amounts of:

- Benzene in MAFs Kilo and Oscar,
- Methylene chloride in Kilo and Lima and
- Toluene in Foxtrot, Kilo, and Lima

However, the VOC media blank sample in November showed trace amounts of methylene chloride above the reporting limit. Additionally, the Kilo field blank detected small amounts of methylene chloride. The trace amounts of chemicals found on media and field blanks can be indicators for false positive results. Therefore, DCPH-D/OE will resample for these constituents in Round 2. A full list of results can be found in Tables 2-4 in the appendices.

5.3 WATER SAMPLING

Except for Aldrin (all MAFs) and Benzo[a]anthracene (MAFs Alpha, Bravo, Charlie, Foxtrot, Golf, India, Juliet, Lima, November, and Oscar) whose concentrations were below the laboratory LOD, all analytes with an EPA-established MCL had results less than the MCL indicating there are no identified analytes within the drinking water presenting a current risk to human health. Some analytes evaluated do not have an MCL, noted not applicable (N/A) in the tables located in the Appendix. The EPA has not determined these analytes to be a risk considering public health protection, technical and financial barriers. The water results for each method can be found in Tables 5-9 of the Appendices.

5.4 SOIL SAMPLING

Soil sampling was performed to determine presence or absence of organophosphate compounds on and around MAF property. The results were non-detect for all ten analytes screened at all fifteen MAFs. The full list of results can be found as Tables 10 in the Appendices.

5.5 INDOOR AIR QUALITY

Direct reading measurements for carbon monoxide, carbon dioxide, ozone, relative humidity, and temperature were taken in each MAF. Readings were compared to comfort levels provided by the ASHRAE Standard 62.1-2010 and exposure limits dictated by ACGIH. A full list of IAQ results can be found in Tables 11 in the appendices.

- Carbon monoxide: Levels ranged from 0 to 6.3 parts-per-million; all below ACGIH TLV of twenty-five parts-per-million.
- Carbon dioxide: MAF levels ranged from 0 to 810 parts-per-million, with an average concentration in the LCC of 633 parts-per-million and Topside Support Building of 549 parts-per-million. All carbon dioxide levels were below the recommended worker comfort maximum exposure limit of 1,000 parts-per-million per ASHRAE criteria.
- Ozone: All levels were at zero, below the ACGIH TLV of 0.1 parts-per-million for light work.
- Relative humidity: Average relative humidity levels ranged from 32.3% to 63.4%, compared to ASHRAE's comfort criteria for relative humidity of 30% to 60%. Although slightly above ASHRAE recommendations, DCPH-D/OE does not foresee any comfort risks associated with these variances.
- Temperature: MAF temperature ranged from 68.1°F to 74.6°F, with an average MAF temperature in the LCC of 76.3°F and Topside Support Building of 75.5°F. ASHRAE temperature recommendation range for summer is 72°F to 80°F. Although a few locations had temperatures below ASHRAE recommendations, DCPH-D/OE does not foresee any comfort risks associated with these temperature variances.

5.6 RADON

Considering the length of time required to collect the radon samples and complete analysis, results from Round 1 radon sampling will be captured in a future report.

6. CONCLUSIONS

The results presented in this report are a part of a multi-faceted study to characterize the environment in which the missileer community works. Three sampling events will occur over a year to determine if seasonal variations in the analytes analyzed exist. Round 2 of this assessment is occurring in Fall 2023. If you have any questions, comments, or concerns, please contact Capt Leigh Durden at 937-938-3297 or by e-mail at leigh.durden@us.af.mil.

BOYD.SCOTT.M.1298312030 Digitally signed by BOYD.SCOTT.M.1298312030 Date: 2023.11.08 13:33:35 -05'00'

SCOTT M. BOYD, Lt Col, USAF, BSC
Chief Consulting Executive

Appendix 1: MAF ALPHA (A-01) Results, Sampled on 7 July 2023

Table 1A: PCB Swipe Sampling

Location	Analyte	Result (µg/100 cm^2)	Standard (40 CFR Part 761) (µg/100 cm^2)
Digital Data Group – Surface	Total PCBs	Not Detected	10
AC Power 60 Cycle – Underside	Total PCBs	Not Detected	10
Battery Charger Access – Surface (PCB Sticker)	Total PCBs	Not Detected	10
Battery Charger Access – Underside (PCB Sticker)	Total PCBs	Not Detected	10
UHF Radio tower SN 338 – Top of third panel	Total PCBs	Not Detected	10
Left Console Keyboard	Total PCBs	Not Detected	10
Left Console Display Screen	Total PCBs	Not Detected	10
Right Console Keyboard	Total PCBs	Not Detected	10
Right Console Display Screen	Total PCBs	Not Detected	10
LCC Ceiling Entry Way Box (PCB sticker)	Total PCBs	Not Detected	10
Wing 5 LCPA panel SN 12-26604/5-009 – Underside	Total PCBs	Not Detected	10
EMI filters – Surface (PCB sticker)	Total PCBs	Not Detected	10
MPP Access Cover – Surface	Total PCBs	Not Detected	10
Elevator Buttons	Total PCBs	Not Detected	10
Door Handle from SFC to Elevator Room	Total PCBs	Not Detected	10
Black phone receiver in SFC next to LCC Door	Total PCBs	Not Detected	10
Motorola Radio Bottom Right Button (SFC Room)	Total PCBs	Not Detected	10
MEADS/KL86 Buttons in SFC	Total PCBs	Not Detected	10
Safe Handle in SFC Room	Total PCBs	Not Detected	10
Common Area Dining Table	Total PCBs	Not Detected	10

Table 2A: Air Sampling Results – PCBs

Analyte	LCC Result (mg/m^3)	Topside Result (mg/m^3)
Aroclor 1016	<0.0021	<0.0021
Aroclor 1221	<0.0021	<0.0021
Aroclor 1232	<0.0021	<0.0021
Aroclor 1242	<0.0021	<0.0021
Aroclor 1248	<0.0021	<0.0021
Aroclor 1254	<0.0021	<0.0021
Aroclor 1260	<0.0021	<0.0021

Table 3A: Air Sampling Results – Organophosphates

Analyte	LCC (8hr) Result (mg/m^3)	Topside (8hr) Result (mg/m^3)	LCC (2hr) Result (mg/m^3)	Topside (2hr) Result (mg/m^3)
Chloropyrifos (Dursban)	<0.0021	<0.0021	<0.0083	<0.0083
Diazinon	<0.0021	<0.0021	<0.0083	<0.0083
Dicrotophos	<0.0021	<0.0021	<0.0083	<0.0083
Ethoprophos (Mocap)	<0.0021	<0.0021	<0.0083	<0.0083
Malathion	<0.0021	<0.0021	<0.0083	<0.0083
Methamidophos	<0.0042	<0.0042	<0.017	<0.017
Methyl Parathion	<0.0021	<0.0021	<0.0083	<0.0083
Parathion (Parathion Ethyl)	<0.0021	<0.0021	<0.0083	<0.0083
Phorate	<0.0021	<0.0021	<0.0083	<0.0083
Terbufos	<0.0021	<0.0021	<0.0083	<0.0083

Table 4A: Air Sampling Results – VOCs

Analyte	LCC Result (µg/m^3)	Topside Result (µg/m^3)
1,1,1,2-Tetrachloroethane	<10	<10
1,1,1-Trichloroethane	<10	<10
1,1,2,2-Tetrachloroethane	<10	<10
1,1,2-Trichloroethane	<10	<10
1,1-Dichloroethane	<10	<10
1,1-Dichloroethylene	<10	<10
1,1-Dichloropropylene	<10	<10
1,2,3-Trichlorobenzene	<10	<10
1,2,3-Trichloropropane	<10	<10
1,2,4-Trichlorobenzene	<10	<10
1,2,4-Trimethylbenzene	<10	<10
1,2-Dibromo-3-chloropropane (DBCP)	<10	<10
Ethylene Dibromide	<10	<10
1,2-Dichlorobenzene	<10	<10
1,2-Dichloroethane	<10	<10
1,2-Dichloropropane	<10	<10
1,3,5-Trimethylbenzene	<10	<10
1,3-Dichlorobenzene	<10	<10
1,3-Dichloropropane	<10	<10
1,4-Dichlorobenzene	<10	<10
2-Chlorotoluene	<10	<10
4-chlorotoluene	<10	<10
Benzene	<10	<10
Bromobenzene	<10	<10
Bromochloromethane	<10	<10
Bromodichloromethane	<10	<10
Bromoform	<10	<10
Carbon Tetrachloride	<10	<10
Chlorobenzene	<10	<10
Chloroform	<10	<10
cis-1,2-Dichloroethylene	<10	<10
cis-1,3-Dichloropropene	<10	<10
Dibromochloromethane	<10	<10
Ethylbenzene	<10	<10
Hexachlorobutadiene	<10	<10

Table 4A: Air Sampling Results – VOCs Cont.

Analyte	LCC Result ($\mu g/m^3$)	Topside Result ($\mu g/m^3$)
Isopropylbenzene	<10	<10
Methylene Chloride(Dichloromethane)	<10	<10
p+m-Xylene	<10	<10
Naphthalene	<10	<10
n-Butylbenzene	<10	<10
n-Propylbenzene	<10	<10
o-Xylene	<10	<10
p-isopropyltoluene	<10	<10
sec-butylbenzene	<10	<10
Styrene	<10	<10
tert-butylbenzene	<10	<10
Tetrachloroethylene	<10	<10
Toluene	<10	<10
trans-1,2-Dichloroethylene	<10	<10
trans-1,3-Dichloropropene	<10	<10
Trichloroethylene	<10	<10

Table 5A: Water Sampling Results – Nitrate/Nitrite

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Nitrate/Nitrite (Total)	2.1	2.0	10

Table 6A: Water Sampling Results – Dioxins

Analyte	Topside Result (pg/L)	LCC Result (pg/L)	Maximum Containment Level (pg/L)
2-3-7-8-Tetrachlorodibenzo-p-dioxin	<4.4	<4.3	30

Table 7A: Water Sampling Results – Diquat/Paraquat

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Diquat	<0.0004	<0.0004	0.02
Paraquat	<0.0004	<0.0004	N/A

Table 8A: Water Sampling Results – PCBs

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
PCB-1016	<0.00008	<0.00008	0.002
PCB-1221	<0.0001	<0.0001	0.002
PCB-1232	<0.0001	<0.0001	0.002
PCB-1242	<0.0001	<0.0001	0.002
PCB-1248	<0.0001	<0.0001	0.002
PCB-1254	<0.0001	<0.0001	0.002
PCB-1260	<0.0001	<0.0001	0.002
Total PCBs	<0.0001	<0.0001	0.002

Table 9A: Water Sampling Results – Pesticides/SVOCs

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
1-Methylnapthalene	<0.00011	<0.00010	N/A
2-Methylnapthalene	<0.00011	<0.00010	N/A
4,4'-DDD	<0.00011	<0.00010	N/A
4,4'-DDE	<0.00011	<0.00010	N/A
4,4'-DDT	<0.00011	<0.00010	N/A
Acenaphthene	<0.00011	<0.00010	N/A
Acenaphthylene	<0.00011	<0.00010	N/A
Alachlor	<0.00011	<0.00010	0.002
Aldrin	<0.00011	<0.00010	0.00001
alpha-Chlordane	<0.00011	<0.00010	N/A

Table 9A: Water Sampling Results – Pesticides/SVOCs Cont.

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Anthracene	<0.00011	<0.00010	N/A
Atrazine	<0.00011	<0.00010	0.003
Benzo[a]anthracene	<0.00011	<0.00010	0.0001
Benzo[a]pyrene	<0.000021	<0.000021	0.0002
Benzo[b]fluoranthene	<0.00011	<0.00010	0.0002
Benzo[g,h,i]perylene	<0.00011	<0.00010	N/A
Benzo[k]fluoranthene	<0.00011	<0.00010	0.0002
Bromacil	<0.00011	<0.00010	N/A
Butachlor	<0.00011	<0.00010	N/A
Butylbenzylphthalate	<0.0011	<0.0010	N/A
Chlorothalonil	<0.00011	<0.00010	N/A
Chrysene	<0.00011	<0.00010	0.0002
Cyanazine	<0.00011	<0.00010	N/A
Deisopropylatrazine	<0.0011	<0.0010	N/A
Desethylatrazine	<0.0011	<0.0010	N/A
Di(2-ethylhexyl)phthalate	<0.00064	<0.00062	0.006
Di(2-ethylhexyl)adipate	<0.00064	<0.00062	0.40
Diazinon	<0.00011	<0.00010	N/A
Dibenz[a,h]anthracene	<0.00011	<0.00010	0.0003
Dieldrin	<0.00011	<0.00010	N/A
Diethylphthalate	<0.0011	<0.0010	N/A
Dimethoate	<0.00053	<0.00052	N/A
Dimethylphthalate	<0.0011	<0.0010	N/A
Di-n-butylphthalate	<0.0021	<0.0021	N/A
Di-n-octylphthalate	<0.0021	<0.0021	N/A
Endrin	<0.000011	<0.000010	0.002
EPTC	<0.00011	<0.00010	N/A
Fluoranthene	<0.00011	<0.00010	N/A
Fluorene	<0.00011	<0.00010	N/A
gamma-BHC (Lindane)	<0.000021	<0.000021	0.0002
gamma-Chlordane	<0.00011	<0.00010	0.100
Heptachlor	<0.000011	<0.000010	0.0004
Heptachlor Epoxide	<0.000011	<0.000010	0.0002
Hexachlorobenzene	<0.00011	<0.00010	0.001
Hexachlorocyclopentadiene	<0.00011	<0.00010	0.05
Indeno[1,2,3-cd]pyrene	<0.00011	<0.00010	0.0004
Malathion	<0.00011	<0.00010	N/A

Table 9A: Water Sampling Results – Pesticides/SVOCs Cont.

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Methoxychlor	<0.00011	<0.00010	0.04
Metolachlor	<0.00011	<0.00010	N/A
Metribuzin	<0.00011	<0.00010	N/A
Molinate	<0.00011	<0.00010	N/A
Naphthalene	<0.00011	<0.00010	N/A
Parathion	<0.00053	<0.00052	N/A
Phenanthrene	<0.00011	<0.00010	N/A
Prometryn	<0.00011	<0.00010	N/A
Propachlor	<0.00011	<0.00010	N/A
Pyrene	<0.00011	<0.00010	0.0002
Simazine	<0.000075	<0.000073	0.004
Terbacil	<0.00011	<0.00010	N/A
Thiobencarb	<0.00011	<0.00010	N/A
trans-Nonachlor	<0.00011	<0.00010	0.002
Trifluralin	<0.00011	<0.00010	N/A

Table 10A: Soil Sampling Results

Analyte	NW corner, 5 ft from fence (mg/kg-dry)	SW Corner, 5 ft from fence (mg/kg-dry)	SE Corner, 5 ft from fence (mg/kg-dry)
Methyl Parathion	No data. Sample broke during shipment.	Not Detected	Not Detected
Phorate		Not Detected	Not Detected
Parathion		Not Detected	Not Detected
Methamidophos		Not Detected	Not Detected
Malathion		Not Detected	Not Detected
Ethoprop		Not Detected	Not Detected
Dicrotophos		Not Detected	Not Detected
Diazinon		Not Detected	Not Detected
Chlorpyrifos		Not Detected	Not Detected
Terbufos		Not Detected	Not Detected

Table 10A: Soil Sampling Results Cont.

Analyte	NE Corner, 5 ft from fence (mg/kg-dry)	South side of MAF Outside RM103, 15 ft from bldg (mg/kg-dry)	East side near basketball court/sandpile, 10 ft from garage (mg/kg-dry)
Methyl Parathion	Not Detected	Not Detected	Not Detected
Phorate	Not Detected	Not Detected	Not Detected
Parathion	Not Detected	Not Detected	Not Detected
Methamidophos	Not Detected	Not Detected	Not Detected
Malathion	Not Detected	Not Detected	Not Detected
Ethoprop	Not Detected	Not Detected	Not Detected
Dicrotophos	Not Detected	Not Detected	Not Detected
Diazinon	Not Detected	Not Detected	Not Detected
Chlorpyrifos	Not Detected	Not Detected	Not Detected
Terbufos	Not Detected	Not Detected	Not Detected

Table 11A: Air Direct Reading Values

Analyte	Topside Measured Value	LCC Measure Value	Recommended Range
Carbon Dioxide	770 ppm	810 ppm	1000 ppm
Relative Humidity	46.7%	53%	30% - 60%
Temperature	71.5 °F	71.4 °F	72°F - 80°F
Carbon Monoxide	0 ppm	5.6 ppm	25 ppm (8-hr TWA)
Ozone	0 ppm	0 ppm	0.1 ppm (8-hr TWA)

Table 12A: Water Direct Reading Values

Analyte	Topside Measured Value	LCC Measured Value	Recommended Range
pH	>8.5	>8.5	6.5 - 8.5
Free Available Chlorine	0.82	0.57	> 0 mg/L; < 4 mg/L
Total Available Chlorine	0.86	0.63	> 0 mg/L; < 4 mg/L

Appendix 2: MAF BRAVO (B-01) Results, Sampled on 8 July 2023

Table 1B: PCB Swipe Sampling

Location	Analyte	Result (µg/100 cm^2)	Standard (40 CFR Part 761) (µg/100 cm^2)
Digital Data Group – Surface	Total PCBs	Not Detected	10
Digital Data Group – Underside	Total PCBs	Not Detected	10
DC Power Supply – Surface	Total PCBs	Not Detected	10
AC Power Supply – Surface	Total PCBs	Not Detected	10
Battery Charger Access – Underside	Total PCBs	Not Detected	10
Left Console Display Screen	Total PCBs	Not Detected	10
Left Console Keyboard	Total PCBs	Not Detected	10
Right Console Display Screen	Total PCBs	Not Detected	10
Right Console Keyboard	Total PCBs	Not Detected	10
Control Power Supply – Right Handle	Aroclor 1254	1.06	10
	Total PCBs	1.06	10
Control Power Supply – Bottom Seam	Total PCBs	Not Detected	10
Fridge Bottom Handle	Total PCBs	Not Detected	10
Wing 5 LCPA (bottom inside)	Total PCBs	Not Detected	10
Wing 5 LCPA (bottom seam)	Total PCBs	Not Detected	10
LCC Bathroom Handle	Total PCBs	Not Detected	10
MPP Auto Switching Unit	Total PCBs	Not Detected	10
Filtron R.F Interference Filter – Surface	Total PCBs	Not Detected	10
Doorknob from LCC to SFC Room	Total PCBs	Not Detected	10
SFC Room Desk	Total PCBs	Not Detected	10
Doorknob from SFC Room to Common Area	Total PCBs	Not Detected	10

Table 2B: Air Sampling Results – PCBs

Analyte	LCC Result (mg/m^3)	Topside Result (mg/m^3)
Aroclor 1016	<0.0021	<0.0021
Aroclor 1221	<0.0021	<0.0021
Aroclor 1232	<0.0021	<0.0021
Aroclor 1242	<0.0021	<0.0021
Aroclor 1248	<0.0021	<0.0021
Aroclor 1254	<0.0021	<0.0021
Aroclor 1260	<0.0021	<0.0021

Table 3B: Air Sampling Results – Organophosphates

Analyte	LCC (8hr) Result (mg/m^3)	Topside (8hr) Result (mg/m^3)	LCC (2hr) Result (mg/m^3)	Topside (2hr) Result (mg/m^3)
Chloropyrifos (Dursban)	<0.0021	<0.0021	<0.0011	<0.0011
Diazinon	<0.0021	<0.0021	<0.0011	<0.0011
Dicrotophos	<0.0021	<0.0021	<0.0011	<0.0011
Ethoprophos (Mocap)	<0.0021	<0.0021	<0.0011	<0.0011
Malathion	<0.0021	<0.0021	<0.0011	<0.0011
Methamidophos	<0.0042	<0.0042	<0.0022	<0.0022
Methyl Parathion	<0.0021	<0.0021	<0.0011	<0.0011
Parathion (Parathion Ethyl)	<0.0021	<0.0021	<0.0011	<0.0011
Phorate	<0.0021	<0.0021	<0.0011	<0.0011
Terbufos	<0.0021	<0.0021	<0.0011	<0.0011

Table 4B: Air Sampling Results – VOCs

Analyte	LCC Result (µg/m^3)	Topside Result (µg/m^3)
1,1,1,2-Tetrachloroethane	<10	<10
1,1,1-Trichloroethane	<10	<10
1,1,2,2-Tetrachloroethane	<10	<10
1,1,2-Trichloroethane	<10	<10
1,1-Dichloroethane	<10	<10
1,1-Dichloroethylene	<10	<10
1,1-Dichloropropylene	<10	<10
1,2,3-Trichlorobenzene	<10	<10
1,2,3-Trichloropropane	<10	<10
1,2,4-Trichlorobenzene	<10	<10
1,2,4-Trimethylbenzene	<10	<10
1,2-Dibromo-3-chloropropane (DBCP)	<10	<10
Ethylene Dibromide	<10	<10
1,2-Dichlorobenzene	<10	<10
1,2-Dichloroethane	<10	<10
1,2-Dichloropropane	<10	<10
1,3,5-Trimethylbenzene	<10	<10
1,3-Dichlorobenzene	<10	<10
1,3-Dichloropropane	<10	<10
1,4-Dichlorobenzene	<10	<10
2-Chlorotoluene	<10	<10
4-chlorotoluene	<10	<10
Benzene	<10	<10
Bromobenzene	<10	<10
Bromochloromethane	<10	<10
Bromodichloromethane	<10	<10
Bromoform	<10	<10
Carbon Tetrachloride	<10	<10
Chlorobenzene	<10	<10
Chloroform	<10	<10
cis-1,2-Dichloroethylene	<10	<10
cis-1,3-Dichloropropene	<10	<10
Dibromochloromethane	<10	<10
Ethylbenzene	<10	<10
Hexachlorobutadiene	<10	<10

Table 4B: Air Sampling Results – VOCs Cont.

Analyte	LCC Result ($\mu g/m^3$)	Topside Result ($\mu g/m^3$)
Isopropylbenzene	<10	<10
Methylene Chloride(Dichloromethane)	<10	<10
p+m-Xylene	<10	<10
Naphthalene	<10	<10
n-Butylbenzene	<10	<10
n-Propylbenzene	<10	<10
o-Xylene	<10	<10
p-isopropyltoluene	<10	<10
sec-butylbenzene	<10	<10
Styrene	<10	<10
tert-butylbenzene	<10	<10
Tetrachloroethylene	<10	<10
Toluene	<10	<10
trans-1,2-Dichloroethylene	<10	<10
trans-1,3-Dichloropropene	<10	<10
Trichloroethylene	<10	<10

Table 5B: Water Sampling Results – Nitrate/Nitrite

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Nitrate/Nitrite (Total)	2.1	2.0	10

Table 6B: Water Sampling Results – Dioxins

Analyte	Topside Result (pg/L)	LCC Result (pg/L)	Maximum Containment Level (pg/L)
2-3-7-8-Tetrachlorodibenzo-p-dioxin	<4.4	<4.3	30

Table 7B: Water Sampling Results – Diquat/Paraquat

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Diquat	<0.0004	<0.0004	0.02
Paraquat	<0.0004	<0.0004	N/A

Table 8B: Water Sampling Results – PCBs

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
PCB-1016	<0.00008	<0.00008	0.002
PCB-1221	<0.0001	<0.0001	0.002
PCB-1232	<0.0001	<0.0001	0.002
PCB-1242	<0.0001	<0.0001	0.002
PCB-1248	<0.0001	<0.0001	0.002
PCB-1254	<0.0001	<0.0001	0.002
PCB-1260	<0.0001	<0.0001	0.002
Total PCBs	<0.0001	<0.0001	0.002

Table 9B: Water Sampling Results – Pesticides/SVOCs

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
1-Methylnapthalene	<0.00011	<0.00010	N/A
2-Methylnapthalene	<0.00011	<0.00010	N/A
4,4'-DDD	<0.00011	<0.00010	N/A
4,4'-DDE	<0.00011	<0.00010	N/A
4,4'-DDT	<0.00011	<0.00010	N/A
Acenaphthene	<0.00011	<0.00010	N/A
Acenaphthylene	<0.00011	<0.00010	N/A
Alachlor	<0.00011	<0.00010	0.002
Aldrin	<0.00011	<0.00010	0.00001
alpha-Chlordane	<0.00011	<0.00010	N/A

Table 9B: Water Sampling Results – Pesticides/SVOCs Cont.

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Anthracene	<0.00011	<0.00010	N/A
Atrazine	<0.00011	<0.00010	0.003
Benzo[a]anthracene	<0.00011	<0.00010	0.0001
Benzo[a]pyrene	<0.000021	<0.000021	0.0002
Benzo[b]fluoranthene	<0.00011	<0.00010	0.0002
Benzo[g,h,i]perylene	<0.00011	<0.00010	N/A
Benzo[k]fluoranthene	<0.00011	<0.00010	0.0002
Bromacil	<0.00011	<0.00010	N/A
Butachlor	<0.00011	<0.00010	N/A
Butylbenzylphthalate	<0.0011	<0.0010	N/A
Chlorothalonil	<0.00011	<0.00010	N/A
Chrysene	<0.00011	<0.00010	0.0002
Cyanazine	<0.00011	<0.00010	N/A
Deisopropylatrazine	<0.0011	<0.0010	N/A
Desethylatrazine	<0.0011	<0.0010	N/A
Di(2-ethylhexyl)phthalate	<0.00064	<0.00063	0.006
Di(2-ethylhexyl)adipate	<0.00064	<0.00063	0.40
Diazinon	<0.00011	<0.00010	N/A
Dibenz[a,h]anthracene	<0.00011	<0.00010	0.0003
Dieldrin	<0.00011	<0.00010	N/A
Diethylphthalate	<0.0011	<0.0010	N/A
Dimethoate	<0.00054	<0.00052	N/A
Dimethylphthalate	<0.0011	<0.0010	N/A
Di-n-butylphthalate	0.011	0.009	N/A
Di-n-octylphthalate	<0.00211	<0.0021	N/A
Endrin	<0.000011	<0.000010	0.002
EPTC	<0.00011	<0.00010	N/A
Fluoranthene	<0.00011	<0.00010	N/A
Fluorene	<0.00011	<0.00010	N/A
gamma-BHC (Lindane)	<0.000021	<0.000021	0.0002
gamma-Chlordane	<0.00011	<0.00010	0.100
Heptachlor	<0.000011	<0.000010	0.0004
Heptachlor Epoxide	<0.000011	<0.000010	0.0002
Hexachlorobenzene	<0.00011	<0.00010	0.001
Hexachlorocyclopentadiene	<0.00011	<0.00010	0.05
Indeno[1,2,3-cd]pyrene	<0.00011	<0.00010	0.0004
Malathion	<0.00011	<0.00010	N/A

Table 9B: Water Sampling Results – Pesticides/SVOCs Cont.

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Methoxychlor	<0.00011	<0.00010	0.04
Metolachlor	<0.00011	<0.00010	N/A
Metribuzin	<0.00011	<0.00010	N/A
Molinate	<0.00011	<0.00010	N/A
Naphthalene	<0.00011	<0.00010	N/A
Parathion	<0.00054	<0.00052	N/A
Phenanthrene	<0.00011	<0.00010	N/A
Prometryn	<0.00011	<0.00010	N/A
Propachlor	<0.00011	<0.00010	N/A
Pyrene	<0.00011	<0.00010	0.0002
Simazine	<0.000075	<0.000073	0.004
Terbacil	<0.00011	<0.00010	N/A
Thiobencarb	<0.00011	<0.00010	N/A
trans-Nonachlor	<0.00011	<0.00010	0.002
Trifluralin	<0.00011	<0.00010	N/A

Table 10B: Soil Sampling Results

Analyte	SW corner (mg/kg-dry)	SE corner (mg/kg-dry)	NE corner (mg/kg-dry)
Methyl Parathion	Not Detected	Not Detected	Not Detected
Phorate	Not Detected	Not Detected	Not Detected
Parathion	Not Detected	Not Detected	Not Detected
Methamidophos	Not Detected	Not Detected	Not Detected
Malathion	Not Detected	Not Detected	Not Detected
Ethoprop	Not Detected	Not Detected	Not Detected
Dicrotophos	Not Detected	Not Detected	Not Detected
Diazinon	Not Detected	Not Detected	Not Detected
Chlorpyrifos	Not Detected	Not Detected	Not Detected
Terbufos	Not Detected	Not Detected	Not Detected

Table 10B: Soil Sampling Results Cont.

Analyte	NW corner (mg/kg-dry)	SW inside corner, air intake vent (mg/kg-dry)	SW inside corner (mg/kg-dry)
Methyl Parathion	Not Detected	Not Detected	Not Detected
Phorate	Not Detected	Not Detected	Not Detected
Parathion	Not Detected	Not Detected	Not Detected
Methamidophos	Not Detected	Not Detected	Not Detected
Malathion	Not Detected	Not Detected	Not Detected
Ethoprop	Not Detected	Not Detected	Not Detected
Dicrotophos	Not Detected	Not Detected	Not Detected
Diazinon	Not Detected	Not Detected	Not Detected
Chlorpyrifos	Not Detected	Not Detected	Not Detected
Terbufos	Not Detected	Not Detected	Not Detected

Table 11B: Air Direct Reading Values

Analyte	Topside Measured Value	LCC Measure Value	Recommended Range
Carbon Dioxide	458 ppm	515 ppm	1000 ppm
Relative Humidity	63%	38%	30% - 60%
Temperature	70.7 °F	70.7 °F	72°F - 80°F
Carbon Monoxide	0.05 ppm	2.1 ppm	25 ppm (8-hr TWA)
Ozone	0 ppm	0 ppm	0.1 ppm (8-hr TWA)

Table 12B: Water Direct Reading Values

Analyte	Topside Measured Value	LCC Measured Value	Recommended Range
pH	>8.5	>8.5	6.5 - 8.5
Free Available Chlorine	1.5	1.2	> 0 mg/L; < 4 mg/L
Total Available Chlorine	1.64	1.38	> 0 mg/L; < 4 mg/L

Appendix 3: MAF CHARLIE (C-01) Results, Sampled on 9 July 2023

Table 1C: PCB Swipe Sampling

Location	Analyte	Result (µg/100 cm^2)	Standard (40 CFR Part 761) (µg/100 cm^2)
Receiver Digital Data (SN: 0003049) – Surface	Total PCBs	Not Detected	10
Receiver digital data (SN: 0003049) – Underside	Total PCBs	Not Detected	10
Battery Access Charger – Surface (PCB sticker)	Aroclor 1254	3.15	10
	Total PCBs	3.15	10
Battery Access Charger – Ground Level (PCB sticker)	Total PCBs	Not Detected	10
UHF Radio Tower (SN: 171) – Top of 3rd Box	Total PCBs	Not Detected	10
Battery Charger – Inside Box	Total PCBs	Not Detected	10
Left Console Keyboard	Aroclor 1254	1.10	10
	Total PCBs	1.10	10
Right Console Keyboard	Total PCBs	Not Detected	10
LCC Ceiling Entry Way Box (PCB sticker)	Total PCBs	Not Detected	10
Wing 5 LCPA Panel (SN: 12-26601/5-015) – Underside	Total PCBs	Not Detected	10
Emergency Battery in Floor	Total PCBs	Not Detected	10
Blast Door Above Pump Group Metal Plack	Aroclor 1254	1.80	10
	Total PCBs	1.80	10
AF SAC COM Rack – Top of Black Box	Aroclor 1254	1.44	10
	Total PCBs	1.44	10
Motor Generator Surface	Aroclor 1254	2.62	10
	Total PCBs	2.62	10
Motor Generator – Underside Floor Plate	Total PCBs	Not Detected	10
EMI filters – Surface (PCB sticker)	Total PCBs	Not Detected	10
Motorola Radio Bottom Right Button in FSC	Total PCBs	Not Detected	10
MEEDS/KL86A	Total PCBs	Not Detected	10
Safe Handle in SFC	Total PCBs	Not Detected	10
Common Area Dining Table	Total PCBs	Not Detected	10

Table 2C: Air Sampling Results – PCBs

Analyte	LCC Result (mg/m^3)	Topside Result (mg/m^3)
Aroclor 1016	<0.0021	<0.0021
Aroclor 1221	<0.0021	<0.0021
Aroclor 1232	<0.0021	<0.0021
Aroclor 1242	<0.0021	<0.0021
Aroclor 1248	<0.0021	<0.0021
Aroclor 1254	<0.0021	<0.0021
Aroclor 1260	<0.0021	<0.0021

Table 3C: Air Sampling Results –Organophosphates

Analyte	LCC (8hr) Result (mg/m^3)	Topside (8hr) Result (mg/m^3)	LCC (2hr) Result (mg/m^3)	Topside (2hr) Result (mg/m^3)
Chloropyrifos (Dursban)	<0.0021	<0.0021	<0.0083	<0.0083
Diazinon	<0.0021	<0.0021	<0.0083	<0.0083
Dicrotophos	<0.0021	<0.0021	<0.0083	<0.0083
Ethoprophos (Mocap)	<0.0021	<0.0021	<0.0083	<0.0083
Malathion	<0.0021	<0.0021	<0.0083	<0.0083
Methamidophos	<0.0042	<0.0042	<0.017	<0.017
Methyl Parathion	<0.0021	<0.0021	<0.0083	<0.0083
Parathion (Parathion Ethyl)	<0.0021	<0.0021	<0.0083	<0.0083
Phorate	<0.0021	<0.0021	<0.0083	<0.0083
Terbufos	<0.0021	<0.0021	<0.0083	<0.0083

Table 4C: Air Sampling Results – VOCs

Analyte	LCC Result (µg/m^3)	Topside Result (µg/m^3)
1,1,1,2-Tetrachloroethane	<10	<10
1,1,1-Trichloroethane	<10	<10
1,1,2,2-Tetrachloroethane	<10	<10
1,1,2-Trichloroethane	<10	<10
1,1-Dichloroethane	<10	<10
1,1-Dichloroethylene	<10	<10
1,1-Dichloropropylene	<10	<10
1,2,3-Trichlorobenzene	<10	<10
1,2,3-Trichloropropane	<10	<10
1,2,4-Trichlorobenzene	<10	<10
1,2,4-Trimethylbenzene	<10	<10
1,2-Dibromo-3-chloropropane (DBCP)	<10	<10
Ethylene Dibromide	<10	<10
1,2-Dichlorobenzene	<10	<10
1,2-Dichloroethane	<10	<10
1,2-Dichloropropane	<10	<10
1,3,5-Trimethylbenzene	<10	<10
1,3-Dichlorobenzene	<10	<10
1,3-Dichloropropane	<10	<10
1,4-Dichlorobenzene	<10	<10
2-Chlorotoluene	<10	<10
4-chlorotoluene	<10	<10
Benzene	<10	<10
Bromobenzene	<10	<10
Bromochloromethane	<10	<10
Bromodichloromethane	<10	<10
Bromoform	<10	<10
Carbon Tetrachloride	<10	<10
Chlorobenzene	<10	<10
Chloroform	<10	<10
cis-1,2-Dichloroethylene	<10	<10
cis-1,3-Dichloropropene	<10	<10
Dibromochloromethane	<10	<10
Ethylbenzene	<10	<10
Hexachlorobutadiene	<10	<10

Table 4C: Air Sampling Results – VOCs Cont.

Analyte	LCC Result ($\mu g/m^3$)	Topside Result ($\mu g/m^3$)
Isopropylbenzene	<10	<10
Methylene Chloride(Dichloromethane)	<10	<10
p+m-Xylene	<10	<10
Naphthalene	<10	<10
n-Butylbenzene	<10	<10
n-Propylbenzene	<10	<10
o-Xylene	<10	<10
p-isopropyltoluene	<10	<10
sec-butylbenzene	<10	<10
Styrene	<10	<10
tert-butylbenzene	<10	<10
Tetrachloroethylene	<10	<10
Toluene	<10	<10
trans-1,2-Dichloroethylene	<10	<10
trans-1,3-Dichloropropene	<10	<10
Trichloroethylene	<10	<10

Table 5C: Water Sampling Results – Nitrate/Nitrite

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Nitrate/Nitrite (Total)	<0.10	<0.10	10

Table 6C: Water Sampling Results – Dioxins

Analyte	Topside Result (pg/L)	LCC Result (pg/L)	Maximum Containment Level (pg/L)
2-3-7-8-Tetrachlorodibenzo-p-dioxin	<4.4	<4.6	30

Table 7C: Water Sampling Results – Diquat/Paraquat

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Diquat	<0.0004	<0.0004	0.02
Paraquat	<0.0004	<0.0004	N/A

Table 8C: Water Sampling Results – PCBs

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
PCB-1016	<0.00008	<0.00008	0.002
PCB-1221	<0.0001	<0.0001	0.002
PCB-1232	<0.0001	<0.0001	0.002
PCB-1242	<0.0001	<0.0001	0.002
PCB-1248	<0.0001	<0.0001	0.002
PCB-1254	<0.0001	<0.0001	0.002
PCB-1260	<0.0001	<0.0001	0.002
Total PCBs	<0.0001	<0.0001	0.002

Table 9C: Water Sampling Results – Pesticides/SVOCs

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
1-Methylnapthalene	<0.00011	<0.00011	N/A
2-Methylnapthalene	<0.00011	<0.00011	N/A
4,4'-DDD	<0.00011	<0.00011	N/A
4,4'-DDE	<0.00011	<0.00011	N/A
4,4'-DDT	<0.00011	<0.00011	N/A
Acenaphthene	<0.00011	<0.00011	N/A
Acenaphthylene	<0.00011	<0.00011	N/A
Alachlor	<0.00011	<0.00011	0.002
Aldrin	<0.00011	<0.00011	0.00001
alpha-Chlordane	<0.00011	<0.00011	N/A

Table 9C: Water Sampling Results – Pesticides/SVOCs Cont.

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Anthracene	<0.00011	<0.00011	N/A
Atrazine	<0.00011	<0.00011	0.003
Benzo[a]anthracene	<0.00011	<0.00011	0.0001
Benzo[a]pyrene	<0.000022	<0.000021	0.0002
Benzo[b]fluoranthene	<0.00011	<0.00011	0.0002
Benzo[g,h,i]perylene	<0.00011	<0.00011	N/A
Benzo[k]fluoranthene	<0.00011	<0.00011	0.0002
Bromacil	<0.00011	<0.00011	N/A
Butachlor	<0.00011	<0.00011	N/A
Butylbenzylphthalate	<0.0011	<0.0011	N/A
Chlorothalonil	<0.00011	<0.00011	N/A
Chrysene	<0.00011	<0.00011	0.0002
Cyanazine	<0.00011	<0.00011	N/A
Deisopropylatrazine	<0.0011	<0.0011	N/A
Desethylatrazine	<0.0011	<0.0011	N/A
Di(2-ethylhexyl)phthalate	<0.00065	<0.00064	0.006
Di(2-ethylhexyl)adipate	<0.00065	<0.00064	0.40
Diazinon	<0.00011	<0.00011	N/A
Dibenz[a,h]anthracene	<0.00011	<0.00011	0.0003
Dieldrin	<0.00011	<0.00011	N/A
Diethylphthalate	<0.0011	<0.0011	N/A
Dimethoate	<0.00054	<0.00053	N/A
Dimethylphthalate	<0.0011	<0.0011	N/A
Di-n-butylphthalate	<0.0022	<0.0021	N/A
Di-n-octylphthalate	<0.0022	<0.0021	N/A
Endrin	<0.000011	<0.000011	0.002
EPTC	<0.00011	<0.00011	N/A
Fluoranthene	<0.00011	<0.00011	N/A
Fluorene	<0.00011	<0.00011	N/A
gamma-BHC (Lindane)	<0.000022	<0.000021	0.0002
gamma-Chlordane	<0.00011	<0.00011	0.100
Heptachlor	<0.000011	<0.000011	0.0004
Heptachlor Epoxide	<0.000011	<0.000011	0.0002
Hexachlorobenzene	<0.00011	<0.00011	0.001
Hexachlorocyclopentadiene	<0.00011	<0.00011	0.05
Indeno[1,2,3-cd]pyrene	<0.00011	<0.00011	0.0004
Malathion	<0.00011	<0.00011	N/A

Table 9C: Water Sampling Results – Pesticides/SVOCs Cont.

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Methoxychlor	<0.00011	<0.00011	0.04
Metolachlor	<0.00011	<0.00011	N/A
Metribuzin	<0.00011	<0.00011	N/A
Molinate	<0.00011	<0.00011	N/A
Naphthalene	<0.00011	<0.00011	N/A
Parathion	<0.00054	<0.00053	N/A
Phenanthrene	<0.00011	<0.00011	N/A
Prometryn	<0.00011	<0.00011	N/A
Propachlor	<0.00011	<0.00011	N/A
Pyrene	<0.00011	<0.00011	0.0002
Simazine	<0.000076	<0.000074	0.004
Terbacil	<0.00011	<0.00011	N/A
Thiobencarb	<0.00011	<0.00011	N/A
trans-Nonachlor	<0.00011	<0.00011	0.002
Trifluralin	<0.00011	<0.00011	N/A

Table 10C: Soil Sampling Results

Analyte	NE perimeter fence, grazing side (mg/kg-dry)	Outside air intake of North wall (mg/kg-dry)	NW perimeter fence on grazing side (mg/kg-dry)
Methyl Parathion	Not Detected	Not Detected	Not Detected
Phorate	Not Detected	Not Detected	Not Detected
Parathion	Not Detected	Not Detected	Not Detected
Methamidophos	Not Detected	Not Detected	Not Detected
Malathion	Not Detected	Not Detected	Not Detected
Ethoprop	Not Detected	Not Detected	Not Detected
Dicrotophos	Not Detected	Not Detected	Not Detected
Diazinon	Not Detected	Not Detected	Not Detected
Chlorpyrifos	Not Detected	Not Detected	Not Detected
Terbufos	Not Detected	Not Detected	Not Detected

Table 10C: Soil Sampling Results Cont.

Analyte	SW perimeter fence on grazing side (mg/kg-dry)	Above the capsule (mg/kg-dry)	SE perimeter fence corner, grazing side (mg/kg-dry)
Methyl Parathion	Not Detected	Not Detected	Not Detected
Phorate	Not Detected	Not Detected	Not Detected
Parathion	Not Detected	Not Detected	Not Detected
Methamidophos	Not Detected	Not Detected	Not Detected
Malathion	Not Detected	Not Detected	Not Detected
Ethoprop	Not Detected	Not Detected	Not Detected
Dicrotophos	Not Detected	Not Detected	Not Detected
Diazinon	Not Detected	Not Detected	Not Detected
Chlorpyrifos	Not Detected	Not Detected	Not Detected
Terbufos	Not Detected	Not Detected	Not Detected

Table 11C: Air Direct Reading Values

Analyte	Topside Measured Value	LCC Measure Value	Recommended Range
Carbon Dioxide	555 ppm	500 ppm	1000 ppm
Relative Humidity	30.6%	39%	30% - 60%
Temperature	70°F	69.6°F	72°F - 80°F
Carbon Monoxide	0 ppm	1.5 ppm	25 ppm (8-hr TWA)
Ozone	0 ppm	0 ppm	0.1 ppm (8-hr TWA)

Table 12C: Water Direct Reading Values

Analyte	Topside Measured Value	LCC Measured Value	Recommended Range
pH	>8.5	>8.5	6.5 - 8.5
Free Available Chlorine	0.81	0.68	> 0 mg/L; < 4 mg/L
Total Available Chlorine	0.94	0.79	> 0 mg/L; < 4 mg/L

Appendix 4: MAF DELTA (D-01) Results, Sampled on 9 July 2023

Table 1D: PCB Swipe Sampling

Location	Analyte	Result (µg/100 cm^2)	Standard (40 CFR Part 761) (µg/100 cm^2)
Digital Data Group – Surface	Total PCBs	Not Detected	10
Digital Data Group – Underside	Total PCBs	Not Detected	10
DC Power Supply (under plastic cover)	Total PCBs	Not Detected	10
AC Power Supply (under plastic cover)	Total PCBs	Not Detected	10
Battery Charger Access	Total PCBs	Not Detected	10
Control Power Supply – Right Handle	Total PCBs	Not Detected	10
Control Power Supply – Underside	Total PCBs	Not Detected	10
Left Console Display Screen	Total PCBs	Not Detected	10
Left Console Keyboard	Total PCBs	Not Detected	10
Right Console Display Screen	Total PCBs	1.12	10
	Aroclor 1254	1.12	10
Right Console Keyboard	Total PCBs	1.91	10
	Aroclor 1254	1.91	10
Fridge Bottom Handle	Total PCBs	Not Detected	10
Wing 5 LCPA (inside bottom)	Total PCBs	Not Detected	10
Wing 5 LCPA (bottom seam)	Total PCBs	Not Detected	10
LCC Bathroom Handle	Total PCBs	Not Detected	10
Filtron R.F. Interference Filter – Surface	Total PCBs	Not Detected	10
MPP, Automatic Switching Unit (inside bottom)	Total PCBs	Not Detected	10
Doorknob from elevator to SFC Room	Total PCBs	Not Detected	10
SFC Desk	Total PCBs	Not Detected	10
Door handle from SF Comm Room to Topside	Total PCBs	Not Detected	10

Table 2D: Air Sampling Results – PCBs

Analyte	LCC Result (mg/m^3)	Topside Result (mg/m^3)
Aroclor 1016	<0.0021	<0.0021
Aroclor 1221	<0.0021	<0.0021
Aroclor 1232	<0.0021	<0.0021
Aroclor 1242	<0.0021	<0.0021
Aroclor 1248	<0.0021	<0.0021
Aroclor 1254	<0.0021	<0.0021
Aroclor 1260	<0.0021	<0.0021

Table 3D: Air Sampling Results –Organophosphates

Analyte	LCC (8hr) Result (mg/m^3)	Topside (8hr) Result (mg/m^3)	LCC (2hr) Result (mg/m^3)	Topside (2hr) Result (mg/m^3)
Chloropyrifos (Dursban)	<0.0021	<0.0021	<0.0011	<0.0011
Diazinon	<0.0021	<0.0021	<0.0011	<0.0011
Dicrotophos	<0.0021	<0.0021	<0.0011	<0.0011
Ethoprophos (Mocap)	<0.0021	<0.0021	<0.0011	<0.0011
Malathion	<0.0021	<0.0021	<0.0011	<0.0011
Methamidophos	<0.0042	<0.0042	<0.0022	<0.0022
Methyl Parathion	<0.0021	<0.0021	<0.0011	<0.0011
Parathion (Parathion Ethyl)	<0.0021	<0.0021	<0.0011	<0.0011
Phorate	<0.0021	<0.0021	<0.0011	<0.0011
Terbufos	<0.0021	<0.0021	<0.0011	<0.0011

Table 4D: Air Sampling Results – VOCs

Analyte	LCC Result ($\mu g/m^3$)	Topside Result ($\mu g/m^3$)
1,1,1,2-Tetrachloroethane	<10	<10
1,1,1-Trichloroethane	<10	<10
1,1,2,2-Tetrachloroethane	<10	<10
1,1,2-Trichloroethane	<10	<10
1,1-Dichloroethane	<10	<10
1,1-Dichloroethylene	<10	<10
1,1-Dichloropropylene	<10	<10
1,2,3-Trichlorobenzene	<10	<10
1,2,3-Trichloropropane	<10	<10
1,2,4-Trichlorobenzene	<10	<10
1,2,4-Trimethylbenzene	<10	<10
1,2-Dibromo-3-chloropropane (DBCP)	<10	<10
Ethylene Dibromide	<10	<10
1,2-Dichlorobenzene	<10	<10
1,2-Dichloroethane	<10	<10
1,2-Dichloropropane	<10	<10
1,3,5-Trimethylbenzene	<10	<10
1,3-Dichlorobenzene	<10	<10
1,3-Dichloropropane	<10	<10
1,4-Dichlorobenzene	<10	<10
2-Chlorotoluene	<10	<10
4-chlorotoluene	<10	<10
Benzene	400	<10
Bromobenzene	<10	<10
Bromochloromethane	<10	<10
Bromodichloromethane	<10	<10
Bromoform	<10	<10
Carbon Tetrachloride	<10	<10
Chlorobenzene	<10	<10
Chloroform	<10	<10
cis-1,2-Dichloroethylene	<10	<10
cis-1,3-Dichloropropene	<10	<10
Dibromochloromethane	<10	<10
Ethylbenzene	<10	<10
Hexachlorobutadiene	<10	<10

Table 4D: Air Sampling Results – VOCs Cont.

Analyte	LCC Result ($\mu g/m^3$)	Topside Result ($\mu g/m^3$)
Isopropylbenzene	<10	<10
Methylene Chloride(Dichloromethane)	<10	<10
p+m-Xylene	<10	<10
Naphthalene	<10	<10
n-Butylbenzene	<10	<10
n-Propylbenzene	<10	<10
o-Xylene	<10	<10
p-isopropyltoluene	<10	<10
sec-butylbenzene	<10	<10
Styrene	<10	<10
tert-butylbenzene	<10	<10
Tetrachloroethylene	<10	<10
Toluene	<10	<10
trans-1,2-Dichloroethylene	<10	<10
trans-1,3-Dichloropropene	<10	<10
Trichloroethylene	<10	<10

Table 5D: Water Sampling Results – Nitrate/Nitrite

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Nitrate/Nitrite (Total)	3.3	3.2	10

Table 6D: Water Sampling Results – Dioxins

Analyte	Topside Result (pg/L)	LCC Result (pg/L)	Maximum Containment Level (pg/L)
2-3-7-8-Tetrachlorodibenzo-p-dioxin	<4.3	<4.2	30

Table 7D: Water Sampling Results – Diquat/Paraquat

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Diquat	<0.0004	<0.0004	0.02
Paraquat	<0.0004	<0.0004	N/A

Table 8D: Water Sampling Results – PCBs

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
PCB-1016	<0.00008	<0.00008	0.002
PCB-1221	<0.0001	<0.0001	0.002
PCB-1232	<0.0001	<0.0001	0.002
PCB-1242	<0.0001	<0.0001	0.002
PCB-1248	<0.0001	<0.0001	0.002
PCB-1254	<0.0001	<0.0001	0.002
PCB-1260	<0.0001	<0.0001	0.002
Total PCBs	<0.0001	<0.0001	0.002

Table 9D: Water Sampling Results – Pesticides/SVOCs

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
1-Methylnapthalene	<0.00010	<0.00010	N/A
2-Methylnapthalene	<0.00010	<0.00010	N/A
4,4'-DDD	<0.00010	<0.00010	N/A
4,4'-DDE	<0.00010	<0.00010	N/A
4,4'-DDT	<0.00010	<0.00010	N/A
Acenaphthene	<0.00010	<0.00010	N/A
Acenaphthylene	<0.00010	<0.00010	N/A
Alachlor	<0.00010	<0.00010	0.002
Aldrin	<0.00010	<0.00010	0.00001
alpha-Chlordane	<0.00010	<0.00010	N/A

Table 9A: Water Sampling Results – Pesticides/SVOCs Cont.

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Anthracene	<0.00010	<0.00010	N/A
Atrazine	<0.00010	<0.00010	0.003
Benzo[a]anthracene	<0.00010	<0.00010	0.0001
Benzo[a]pyrene	<0.000020	<0.000021	0.0002
Benzo[b]fluoranthene	<0.00010	<0.00010	0.0002
Benzo[g,h,i]perylene	<0.00010	<0.00010	N/A
Benzo[k]fluoranthene	<0.00010	<0.00010	0.0002
Bromacil	<0.00010	<0.00010	N/A
Butachlor	<0.00010	<0.00010	N/A
Butylbenzylphthalate	<0.0010	<0.0010	N/A
Chlorothalonil	<0.00010	<0.00010	N/A
Chrysene	<0.00010	<0.00010	0.0002
Cyanazine	<0.00010	<0.00010	N/A
Deisopropylatrazine	<0.0010	<0.0010	N/A
Desethylatrazine	<0.0010	<0.0010	N/A
Di(2-ethylhexyl)phthalate	<0.00060	<0.00062	0.006
Di(2-ethylhexyl)adipate	<0.00060	<0.00062	0.40
Diazinon	<0.00010	<0.00010	N/A
Dibenz[a,h]anthracene	<0.00010	<0.00010	0.0003
Dieldrin	<0.00010	<0.00010	N/A
Diethylphthalate	<0.0010	<0.0010	N/A
Dimethoate	<0.00050	<0.00051	N/A
Dimethylphthalate	<0.0010	<0.0010	N/A
Di-n-butylphthalate	<0.0020	<0.0021	N/A
Di-n-octylphthalate	<0.0020	<0.0021	N/A
Endrin	<0.000010	<0.000010	0.002
EPTC	<0.00010	<0.00010	N/A
Fluoranthene	<0.00010	<0.00010	N/A
Fluorene	<0.00010	<0.00010	N/A
gamma-BHC (Lindane)	<0.000020	<0.000021	0.0002
gamma-Chlordane	<0.00010	<0.00010	0.100
Heptachlor	<0.000010	<0.000010	0.0004
Heptachlor Epoxide	<0.000010	<0.000010	0.0002
Hexachlorobenzene	<0.00010	<0.00010	0.001
Hexachlorocyclopentadiene	<0.00010	<0.00010	0.05
Indeno[1,2,3-cd]pyrene	<0.00010	<0.00010	0.0004
Malathion	<0.00010	<0.00010	N/A

Table 9D: Water Sampling Results – Pesticides/SVOCs Cont.

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Methoxychlor	<0.00010	<0.00010	0.04
Metolachlor	<0.00010	<0.00010	N/A
Metribuzin	<0.00010	<0.00010	N/A
Molinate	<0.00010	<0.00010	N/A
Naphthalene	<0.00010	<0.00010	N/A
Parathion	<0.00050	<0.00051	N/A
Phenanthrene	<0.00010	<0.00010	N/A
Prometryn	<0.00010	<0.00010	N/A
Propachlor	<0.00010	<0.00010	N/A
Pyrene	<0.00010	<0.00010	0.0002
Simazine	<0.000070	<0.000072	0.004
Terbacil	<0.00010	<0.00010	N/A
Thiobencarb	<0.00010	<0.00010	N/A
trans-Nonachlor	<0.00010	<0.00010	0.002
Trifluralin	<0.00010	<0.00010	N/A

Table 10D: Soil Sampling Results

Analyte	NW of MAF, 20 ft from corner of bldg (mg/kg-dry)	3 ft from outside air intake (mg/kg-dry)	SE corner of MAF (mg/kg-dry)
Methyl Parathion	Not Detected	Not Detected	Not Detected
Phorate	Not Detected	Not Detected	Not Detected
Parathion	Not Detected	Not Detected	Not Detected
Methamidophos	Not Detected	Not Detected	Not Detected
Malathion	Not Detected	Not Detected	Not Detected
Ethoprop	Not Detected	Not Detected	Not Detected
Dicrotophos	Not Detected	Not Detected	Not Detected
Diazinon	Not Detected	Not Detected	Not Detected
Chlorpyrifos	Not Detected	Not Detected	Not Detected
Terbufos	Not Detected	Not Detected	Not Detected

Table 10D: Soil Sampling Results Cont.

Analyte	SW corner of MAF, 5 ft from corner of fence (mg/kg-dry)	NW corner of MAF, 5 ft from corner of fence (mg/kg-dry)	NE corner of MAF (mg/kg-dry)
Methyl Parathion	Not Detected	Not Detected	Not Detected
Phorate	Not Detected	Not Detected	Not Detected
Parathion	Not Detected	Not Detected	Not Detected
Methamidophos	Not Detected	Not Detected	Not Detected
Malathion	Not Detected	Not Detected	Not Detected
Ethoprop	Not Detected	Not Detected	Not Detected
Dicrotophos	Not Detected	Not Detected	Not Detected
Diazinon	Not Detected	Not Detected	Not Detected
Chlorpyrifos	Not Detected	Not Detected	Not Detected
Terbufos	Not Detected	Not Detected	Not Detected

Table 11D: Air Direct Reading Values

Analyte	Topside Measured Value	LCC Measure Value	Recommended Range
Carbon Dioxide	419 ppm	620 ppm	1000 ppm
Relative Humidity	54%	38%	30% - 60%
Temperature	71.7°F	71.4°F	72°F - 80°F
Carbon Monoxide	0.5 ppm	3.8 ppm	25 ppm (8-hr TWA)
Ozone	0 ppm	0 ppm	0.1 ppm (8-hr TWA)

Table 12D: Water Direct Reading Values

Analyte	Topside Measured Value	LCC Measured Value	Recommended Range
pH	8.0	7.9	6.5 - 8.5
Free Available Chlorine	0.21	0	> 0 mg/L; < 4 mg/L
Total Available Chlorine	0.4	0	> 0 mg/L; < 4 mg/L

Appendix 5: MAF ECHO (E-01) Results, Sampled on 8 July 2023

Table 1E: PCB Swipe Sampling

Location	Analyte	Result (µg/100 cm^2)	Standard (40 CFR Part 761) (µg/100 cm^2)
Receiver Digital Data (SN: 0003039) – Surface	Total PCBs	Not Detected	10
Receiver Digital Data (SN 0003038) – Underside	Total PCBs	Not Detected	10
Left Console Keyboard	Total PCBs	Not Detected	10
Left Visual Display Screen	Total PCBs	Not Detected	10
Battery Access Charger – Surface (PCB sticker)	Total PCBs	Not Detected	10
Battery access charger, ground level (PCB sticker)	Total PCBs	Not Detected	10
Right Console Keyboard	Total PCBs	Not Detected	10
Right Visual Display Screen	Total PCBs	Not Detected	10
Wing 5 LCPA Panel – Surface (SN:12-26601/5-002)	Total PCBs	Not Detected	10
Wing 5 LCPA Panel – Underside (SN:12-26601/5-002)	Total PCBs	Not Detected	10
LCC Ceiling Entry Way Box (PCB sticker)	Total PCBs	Not Detected	10
120V 30 400CPS Power Circuit Breaker – Surface	Total PCBs	Not Detected	10
120V 30 400CPS Power Circuit Breaker – Underside	Total PCBs	Not Detected	10
RFI Filter Assembly – Surface	Total PCBs	Not Detected	10
Common Area Dining Table	Total PCBs	Not Detected	10
MEEDS box/KL86A Buttons	Total PCBs	Not Detected	10
Motorola Radio Phone	Total PCBs	Not Detected	10
Safe Handle in SFC	Total PCBs	Not Detected	10
SIN Line (phone to capsule)	Total PCBs	Not Detected	10
Door Handle to Elevator Room	Total PCBs	Not Detected	10

Table 2E: Air Sampling Results – PCBs

Analyte	LCC Result (mg/m^3)	Topside Result (mg/m^3)
Aroclor 1016	<0.0021	<0.0021
Aroclor 1221	<0.0021	<0.0021
Aroclor 1232	<0.0021	<0.0021
Aroclor 1242	<0.0021	<0.0021
Aroclor 1248	<0.0021	<0.0021
Aroclor 1254	<0.0021	<0.0021
Aroclor 1260	<0.0021	<0.0021

Table 3E: Air Sampling Results –Organophosphates

Analyte	LCC (8hr) Result (mg/m^3)	Topside (8hr) Result (mg/m^3)	LCC (2hr) Result (mg/m^3)	Topside (2hr) Result (mg/m^3)
Chloropyrifos (Dursban)	<0.0021	<0.0021	<0.0011	<0.0011
Diazinon	<0.0021	<0.0021	<0.0011	<0.0011
Dicrotophos	<0.0021	<0.0021	<0.0011	<0.0011
Ethoprophos (Mocap)	<0.0021	<0.0021	<0.0011	<0.0011
Malathion	<0.0021	<0.0021	<0.0011	<0.0011
Methamidophos	<0.0042	<0.0042	<0.0022	<0.0022
Methyl Parathion	<0.0021	<0.0021	<0.0011	<0.0011
Parathion (Parathion Ethyl)	<0.0021	<0.0021	<0.0011	<0.0011
Phorate	<0.0021	<0.0021	<0.0011	<0.0011
Terbufos	<0.0021	<0.0021	<0.0011	<0.0011

Table 4E: Air Sampling Results – VOCs

Analyte	LCC Result ($\mu g/m^3$)	Topside Result ($\mu g/m^3$)
1,1,1,2-Tetrachloroethane	<10	<10
1,1,1-Trichloroethane	<10	<10
1,1,2,2-Tetrachloroethane	<10	<10
1,1,2-Trichloroethane	<10	<10
1,1-Dichloroethane	<10	<10
1,1-Dichloroethylene	<10	<10
1,1-Dichloropropylene	<10	<10
1,2,3-Trichlorobenzene	<10	<10
1,2,3-Trichloropropane	<10	<10
1,2,4-Trichlorobenzene	<10	<10
1,2,4-Trimethylbenzene	<10	<10
1,2-Dibromo-3-chloropropane (DBCP)	<10	<10
Ethylene Dibromide	<10	<10
1,2-Dichlorobenzene	<10	<10
1,2-Dichloroethane	<10	<10
1,2-Dichloropropane	<10	<10
1,3,5-Trimethylbenzene	<10	<10
1,3-Dichlorobenzene	<10	<10
1,3-Dichloropropane	<10	<10
1,4-Dichlorobenzene	<10	<10
2-Chlorotoluene	<10	<10
4-chlorotoluene	<10	<10
Benzene	74	<10
Bromobenzene	<10	<10
Bromochloromethane	<10	<10
Bromodichloromethane	<10	<10
Bromoform	<10	<10
Carbon Tetrachloride	<10	<10
Chlorobenzene	<10	<10
Chloroform	<10	<10
cis-1,2-Dichloroethylene	<10	<10
cis-1,3-Dichloropropene	<10	<10
Dibromochloromethane	<10	<10
Ethylbenzene	<10	<10
Hexachlorobutadiene	<10	<10

Table 4E: Air Sampling Results – VOCs Cont.

Analyte	LCC Result ($\mu g/m^3$)	Topside Result ($\mu g/m^3$)
Isopropylbenzene	<10	<10
Methylene Chloride(Dichloromethane)	<10	<10
p+m-Xylene	<10	<10
Naphthalene	<10	<10
n-Butylbenzene	<10	<10
n-Propylbenzene	<10	<10
o-Xylene	<10	<10
p-isopropyltoluene	<10	<10
sec-butylbenzene	<10	<10
Styrene	<10	<10
tert-butylbenzene	<10	<10
Tetrachloroethylene	<10	<10
Toluene	<10	<10
trans-1,2-Dichloroethylene	<10	<10
trans-1,3-Dichloropropene	<10	<10
Trichloroethylene	<10	<10

Table 5E: Water Sampling Results – Nitrate/Nitrite

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Nitrate/Nitrite (Total)	3.4	3.3	10

Table 6E: Water Sampling Results – Dioxins

Analyte	Topside Result (pg/L)	LCC Result (pg/L)	Maximum Containment Level (pg/L)
2-3-7-8-Tetrachlorodibenzo-p-dioxin	<4.0	<4.0	30

Table 7E: Water Sampling Results – Diquat/Paraquat

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Diquat	<0.0004	<0.0004	0.02
Paraquat	<0.0004	<0.0004	N/A

Table 8E: Water Sampling Results – PCBs

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
PCB-1016	<0.00008	<0.00008	0.002
PCB-1221	<0.0001	<0.0001	0.002
PCB-1232	<0.0001	<0.0001	0.002
PCB-1242	<0.0001	<0.0001	0.002
PCB-1248	<0.0001	<0.0001	0.002
PCB-1254	<0.0001	<0.0001	0.002
PCB-1260	<0.0001	<0.0001	0.002
Total PCBs	<0.0001	<0.0001	0.002

Table 9E: Water Sampling Results – Pesticides/SVOCs

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
1-Methylnapthalene	< 0.000099	< 0.000099	N/A
2-Methylnapthalene	< 0.000099	< 0.000099	N/A
4,4'-DDD	< 0.000099	< 0.000099	N/A
4,4'-DDE	< 0.000099	< 0.000099	N/A
4,4'-DDT	< 0.000099	< 0.000099	N/A
Acenaphthene	< 0.000099	< 0.000099	N/A
Acenaphthylene	< 0.000099	< 0.000099	N/A
Alachlor	< 0.000099	< 0.000099	0.002
Aldrin	< 0.000099	< 0.000099	0.00001
alpha-Chlordane	< 0.000099	< 0.000099	N/A

Table 9E: Water Sampling Results – Pesticides/SVOCs Cont.

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Anthracene	< 0.000099	< 0.000099	N/A
Atrazine	< 0.000099	< 0.000099	0.003
Benzo[a]anthracene	< 0.000099	< 0.000099	0.0001
Benzo[a]pyrene	< 0.000020	< 0.000020	0.0002
Benzo[b]fluoranthene	< 0.000099	< 0.000099	0.0002
Benzo[g,h,i]perylene	< 0.000099	< 0.000099	N/A
Benzo[k]fluoranthene	< 0.000099	< 0.000099	0.0002
Bromacil	< 0.000099	< 0.000099	N/A
Butachlor	< 0.000099	< 0.000099	N/A
Butylbenzylphthalate	< 0.00099	< 0.00099	N/A
Chlorothalonil	< 0.000099	< 0.000099	N/A
Chrysene	< 0.000099	< 0.000099	0.0002
Cyanazine	< 0.000099	< 0.000099	N/A
Deisopropylatrazine	< 0.00099	< 0.00099	N/A
Desethylatrazine	< 0.00099	< 0.00099	N/A
Di(2-ethylhexyl)phthalate	< 0.00059	< 0.00059	0.006
Di(2-ethylhexyl)adipate	< 0.00059	< 0.00059	0.40
Diazinon	< 0.000099	< 0.000099	N/A
Dibenz[a,h]anthracene	< 0.000099	< 0.000099	0.0003
Dieldrin	< 0.000099	< 0.000099	N/A
Diethylphthalate	<0.00099	<0.00099	N/A
Dimethoate	< 0.00049	< 0.00049	N/A
Dimethylphthalate	< 0.00099	< 0.00099	N/A
Di-n-butylphthalate	0.012	< 0.0020	N/A
Di-n-octylphthalate	< 0.0020	< 0.0020	N/A
Endrin	< 0.0000099	< 0.0000099	0.002
EPTC	< 0.000099	< 0.000099	N/A
Fluoranthene	< 0.000099	< 0.000099	N/A
Fluorene	< 0.000099	< 0.000099	N/A
gamma-BHC (Lindane)	< 0.000020	< 0.000020	0.0002
gamma-Chlordane	< 0.000099	< 0.000099	0.100
Heptachlor	< 0.0000099	< 0.0000099	0.0004
Heptachlor Epoxide	< 0.0000099	< 0.0000099	0.0002
Hexachlorobenzene	< 0.000099	< 0.000099	0.001
Hexachlorocyclopentadiene	< 0.000099	< 0.000099	0.05
Indeno[1,2,3-cd]pyrene	< 0.000099	< 0.000099	0.0004
Malathion	< 0.000099	< 0.000099	N/A

Table 9E: Water Sampling Results – Pesticides/SVOCs Cont.

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Methoxychlor	< 0.000099	< 0.000099	0.04
Metolachlor	< 0.000099	< 0.000099	N/A
Metribuzin	< 0.000099	< 0.000099	N/A
Molinate	< 0.000099	< 0.000099	N/A
Naphthalene	< 0.000099	< 0.000099	N/A
Parathion	<0.00049	<0.00049	N/A
Phenanthrene	< 0.000099	< 0.000099	N/A
Prometryn	< 0.000099	< 0.000099	N/A
Propachlor	< 0.000099	< 0.000099	N/A
Pyrene	< 0.000099	< 0.000099	0.0002
Simazine	< 0.000069	< 0.000069	0.004
Terbacil	< 0.000099	< 0.000099	N/A
Thiobencarb	< 0.000099	< 0.000099	N/A
trans-Nonachlor	< 0.000099	< 0.000099	0.002
Trifluralin	< 0.000099	< 0.000099	N/A

Table 10E: Soil Sampling Results

Analyte	SE corner of MAF, 5 ft from fence (mg/kg-dry)	NE corner of MAF, 5 ft from fence (mg/kg-dry)	NW corner of MAF, 5 ft from corner (mg/kg-dry)
Methyl Parathion	Not Detected	Not Detected	Not Detected
Phorate	Not Detected	Not Detected	Not Detected
Parathion	Not Detected	Not Detected	Not Detected
Methamidophos	Not Detected	Not Detected	Not Detected
Malathion	Not Detected	Not Detected	Not Detected
Ethoprop	Not Detected	Not Detected	Not Detected
Dicrotophos	Not Detected	Not Detected	Not Detected
Diazinon	Not Detected	Not Detected	Not Detected
Chlorpyrifos	Not Detected	Not Detected	Not Detected
Terbufos	Not Detected	Not Detected	Not Detected

Table 10E: Soil Sampling Results Cont.

Analyte	SW corner of MAF, 5 ft from fence (mg/kg-dry)	Outside Room 103 intake, 15 ft from bldg (mg/kg-dry)	East fence line ditch, near NE corner (mg/kg-dry)
Methyl Parathion	Not Detected	Not Detected	Not Detected
Phorate	Not Detected	Not Detected	Not Detected
Parathion	Not Detected	Not Detected	Not Detected
Methamidophos	Not Detected	Not Detected	Not Detected
Malathion	Not Detected	Not Detected	Not Detected
Ethoprop	Not Detected	Not Detected	Not Detected
Dicrotophos	Not Detected	Not Detected	Not Detected
Diazinon	Not Detected	Not Detected	Not Detected
Chlorpyrifos	Not Detected	Not Detected	Not Detected
Terbufos	Not Detected	Not Detected	Not Detected

Table 11E: Air Direct Reading Values

Analyte	Topside Measured Value	LCC Measure Value	Recommended Range
Carbon Dioxide	510 ppm	608 ppm	1000 ppm
Relative Humidity	59%	40%	30% - 60%
Temperature	72.9°F	68.3°F	72°F - 80°F
Carbon Monoxide	0 ppm	1.3 ppm	25 ppm (8-hr TWA)
Ozone	0 ppm	0 ppm	0.1 ppm (8-hr TWA)

Table 12E: Water Direct Reading Values

Analyte	Topside Measured Value	LCC Measured Value	Recommended Range
pH	>8.5	>8.5	6.5 - 8.5
Free Available Chlorine	1.41	0	> 0 mg/L; < 4 mg/L
Total Available Chlorine	1.91	0	> 0 mg/L; < 4 mg/L

Appendix 6: MAF FOXTROT (F-01) Results, Sampled on 10 July 2023

Table 1F: PCB Swipe Sampling

Location	Analyte	Result (µg/100 cm^2)	Standard (40 CFR Part 761) (µg/100 cm^2)
Digital Data Group – Surface	Total PCBs	Not Detected	10
Digital Data Group – Underside	Total PCBs	Not Detected	10
Power Supply Group – Surface	Total PCBs	Not Detected	10
Power Supply Group – Underside	Total PCBs	Not Detected	10
Right Console Keyboard	Total PCBs	Not Detected	10
Right Console Display Screen	Total PCBs	Not Detected	10
Oxygen Regeneration Unit – Underside	Total PCBs	Not Detected	10
Ceiling Entryway Box in Capsule (PCB Sticker)	Total PCBs	Not Detected	10
Left Console Keyboard	Total PCBs	Not Detected	10
Left Console Display Screen	Total PCBs	Not Detected	10
Fridge Bottom Handle	Total PCBs	Not Detected	10
EMI Filter Assembly – Surface	Total PCBs	Not Detected	10
MPP, Automatic Switching Unit (inside bottom)	Total PCBs	Not Detected	10
Elevator Buttons	Total PCBs	Not Detected	10
MEEDS box/KL86A Buttons	Total PCBs	Not Detected	10
SFC Motorola Radio Phone	Total PCBs	Not Detected	10
SFC SIN Line	Total PCBs	Not Detected	10
Door Handle (SFC to Elevator)	Total PCBs	Not Detected	10
Door Handle (SFC to Common Area)	Total PCBs	Not Detected	10
Common Area Dining Table	Total PCBs	Not Detected	10

Table 2F: Air Sampling Results – PCBs

Analyte	LCC Result (mg/m^3)	Topside Result (mg/m^3)
Aroclor 1016	<0.0021	<0.0021
Aroclor 1221	<0.0021	<0.0021
Aroclor 1232	<0.0021	<0.0021
Aroclor 1242	<0.0021	<0.0021
Aroclor 1248	<0.0021	<0.0021
Aroclor 1254	<0.0021	<0.0021
Aroclor 1260	<0.0021	<0.0021

Table 3F: Air Sampling Results –Organophosphates

Analyte	LCC (8hr) Result (mg/m^3)	Topside (8hr) Result (mg/m^3)	LCC (2hr) Result (mg/m^3)	Topside (2hr) Result (mg/m^3)
Chloropyrifos (Dursban)	<0.0021	<0.0021	<0.0078	<0.0082
Diazinon	<0.0021	<0.0021	<0.0078	<0.0082
Dicrotophos	<0.0021	<0.0021	<0.0078	<0.0082
Ethoprophos (Mocap)	<0.0021	<0.0021	<0.0078	<0.0082
Malathion	<0.0021	<0.0021	<0.0078	<0.0082
Methamidophos	<0.0042	<0.0042	<0.016	<0.016
Methyl Parathion	<0.0021	<0.0021	<0.0078	<0.0082
Parathion (Parathion Ethyl)	<0.0021	<0.0021	<0.0078	<0.0082
Phorate	<0.0021	<0.0021	<0.0078	<0.0082
Terbufos	<0.0021	<0.0021	<0.0078	<0.0082

Table 4F: Air Sampling Results – VOCs

Analyte	LCC Result (µg/m^3)	Topside Result (µg/m^3)
1,1,1,2-Tetrachloroethane	<10	<10
1,1,1-Trichloroethane	<10	<10
1,1,2,2-Tetrachloroethane	<10	<10
1,1,2-Trichloroethane	<10	<10
1,1-Dichloroethane	<10	<10
1,1-Dichloroethylene	<10	<10
1,1-Dichloropropylene	<10	<10
1,2,3-Trichlorobenzene	<10	<10
1,2,3-Trichloropropane	<10	<10
1,2,4-Trichlorobenzene	<10	<10
1,2,4-Trimethylbenzene	<10	<10
1,2-Dibromo-3-chloropropane (DBCP)	<10	<10
Ethylene Dibromide	<10	<10
1,2-Dichlorobenzene	<10	<10
1,2-Dichloroethane	<10	<10
1,2-Dichloropropane	<10	<10
1,3,5-Trimethylbenzene	<10	<10
1,3-Dichlorobenzene	<10	<10
1,3-Dichloropropane	<10	<10
1,4-Dichlorobenzene	<10	<10
2-Chlorotoluene	<10	<10
4-chlorotoluene	<10	<10
Benzene	<10	<10
Bromobenzene	<10	<10
Bromochloromethane	<10	<10
Bromodichloromethane	<10	<10
Bromoform	<10	<10
Carbon Tetrachloride	<10	<10
Chlorobenzene	<10	<10
Chloroform	<10	<10
cis-1,2-Dichloroethylene	<10	<10
cis-1,3-Dichloropropene	<10	<10
Dibromochloromethane	<10	<10
Ethylbenzene	<10	<10
Hexachlorobutadiene	<10	<10

Table 4F: Air Sampling Results – VOCs Cont.

Analyte	LCC Result ($\mu g/m^3$)	Topside Result ($\mu g/m^3$)
Isopropylbenzene	<10	<10
Methylene Chloride(Dichloromethane)	<10	<10
p+m-Xylene	<10	<10
Naphthalene	<10	<10
n-Butylbenzene	<10	<10
n-Propylbenzene	<10	<10
o-Xylene	<10	<10
p-isopropyltoluene	<10	<10
sec-butylbenzene	<10	<10
Styrene	<10	<10
tert-butylbenzene	<10	<10
Tetrachloroethylene	<10	<10
Toluene	26	<10
trans-1,2-Dichloroethylene	<10	<10
trans-1,3-Dichloropropene	<10	<10
Trichloroethylene	<10	<10

Table 5F: Water Sampling Results – Nitrate/Nitrite

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Nitrate/Nitrite (Total)	3.5	3.4	10

Table 6F: Water Sampling Results – Dioxins

Analyte	Topside Result (pg/L)	LCC Result (pg/L)	Maximum Containment Level (pg/L)
2-3-7-8-Tetrachlorodibenzo-p-dioxin	<4.1	<4.3	30

Table 7F: Water Sampling Results – Diquat/Paraquat

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Diquat	<0.0004	<0.0004	0.02
Paraquat	<0.0004	<0.0004	N/A

Table 8F: Water Sampling Results – PCBs

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
PCB-1016	<0.00008	<0.00008	0.002
PCB-1221	<0.0001	<0.0001	0.002
PCB-1232	<0.0001	<0.0001	0.002
PCB-1242	<0.0001	<0.0001	0.002
PCB-1248	<0.0001	<0.0001	0.002
PCB-1254	<0.0001	<0.0001	0.002
PCB-1260	<0.0001	<0.0001	0.002
Total PCBs	<0.0001	<0.0001	0.002

Table 9F: Water Sampling Results – Pesticides/SVOCs

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
1-Methylnapthalene	<0.00010	<0.00011	N/A
2-Methylnapthalene	<0.00010	<0.00011	N/A
4,4'-DDD	<0.00010	<0.00011	N/A
4,4'-DDE	<0.00010	<0.00011	N/A
4,4'-DDT	<0.00010	<0.00011	N/A
Acenaphthene	<0.00010	<0.00011	N/A
Acenaphthylene	<0.00010	<0.00011	N/A
Alachlor	<0.00010	<0.00011	0.002
Aldrin	<0.00010	<0.00011	0.00001
alpha-Chlordane	<0.00010	<0.00011	N/A

Table 9F: Water Sampling Results – Pesticides/SVOCs Cont.

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Anthracene	<0.00010	<0.00011	N/A
Atrazine	<0.00010	<0.00011	0.003
Benzo[a]anthracene	<0.00010	<0.00011	0.0001
Benzo[a]pyrene	<0.000020	<0.000021	0.0002
Benzo[b]fluoranthene	<0.00010	<0.00011	0.0002
Benzo[g,h,i]perylene	<0.00010	<0.00011	N/A
Benzo[k]fluoranthene	<0.00010	<0.00011	0.0002
Bromacil	<0.00010	<0.00011	N/A
Butachlor	<0.00010	<0.00011	N/A
Butylbenzylphthalate	<0.0010	<0.0011	N/A
Chlorothalonil	<0.00010	<0.00011	N/A
Chrysene	<0.00010	<0.00011	0.0002
Cyanazine	<0.00010	<0.00011	N/A
Deisopropylatrazine	<0.0010	<0.0011	N/A
Desethylatrazine	<0.0010	<0.0011	N/A
Di(2-ethylhexyl)phthalate	<0.00061	<0.00064	0.006
Di(2-ethylhexyl)adipate	<0.00061	<0.00064	0.40
Diazinon	<0.00010	<0.00011	N/A
Dibenz[a,h]anthracene	<0.00010	<0.00011	0.0003
Dieldrin	<0.00010	<0.00011	N/A
Diethylphthalate	<0.0010	<0.0011	N/A
Dimethoate	<0.00051	<0.00053	N/A
Dimethylphthalate	<0.0010	<0.0011	N/A
Di-n-butylphthalate	0.0097	0.0086	N/A
Di-n-octylphthalate	<0.0020	<0.0021	N/A
Endrin	<0.000010	<0.000011	0.002
EPTC	<0.00010	<0.00011	N/A
Fluoranthene	<0.00010	<0.00011	N/A
Fluorene	<0.00010	<0.00011	N/A
gamma-BHC (Lindane)	<0.000020	<0.000021	0.0002
gamma-Chlordane	<0.00010	<0.00011	0.100
Heptachlor	<0.000010	<0.000011	0.0004
Heptachlor Epoxide	<0.000010	<0.000011	0.0002
Hexachlorobenzene	<0.00010	<0.00011	0.001
Hexachlorocyclopentadiene	<0.00010	<0.00011	0.05
Indeno[1,2,3-cd]pyrene	<0.00010	<0.00011	0.0004
Malathion	<0.00010	<0.00011	N/A

Table 9F: Water Sampling Results – Pesticides/SVOCs Cont.

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Methoxychlor	<0.00010	<0.00011	0.04
Metolachlor	<0.00010	<0.00011	N/A
Metribuzin	<0.00010	<0.00011	N/A
Molinate	<0.00010	<0.00011	N/A
Naphthalene	<0.00010	<0.00011	N/A
Parathion	<0.00051	<0.00053	N/A
Phenanthrene	<0.00010	<0.00011	N/A
Prometryn	<0.00010	<0.00011	N/A
Propachlor	<0.00010	<0.00011	N/A
Pyrene	<0.00010	<0.00011	0.0002
Simazine	<0.000071	<0.000075	0.004
Terbacil	<0.00010	<0.00011	N/A
Thiobencarb	<0.00010	<0.00011	N/A
trans-Nonachlor	<0.00010	<0.00011	0.002
Trifluralin	<0.00010	<0.00011	N/A

Table 10F: Soil Sampling Results

Analyte	5 ft from HVAC intake (mg/kg-dry)	40 ft from cone (in between MAF and cone) (mg/kg-dry)	SW corner, 5 ft from corner of wind vane post (mg/kg-dry)
Methyl Parathion	Not Detected	Not Detected	Not Detected
Phorate	Not Detected	Not Detected	Not Detected
Parathion	Not Detected	Not Detected	Not Detected
Methamidophos	Not Detected	Not Detected	Not Detected
Malathion	Not Detected	Not Detected	Not Detected
Ethoprop	Not Detected	Not Detected	Not Detected
Dicrotophos	Not Detected	Not Detected	Not Detected
Diazinon	Not Detected	Not Detected	Not Detected
Chlorpyrifos	Not Detected	Not Detected	Not Detected
Terbufos	Not Detected	Not Detected	Not Detected

Table 10F: Soil Sampling Results Cont.

Analyte	NW corner, 5 ft from corner of fence (mg/kg-dry)	NE Corner, 5 ft from fence (mg/kg-dry)	SE Corner, 5 ft from fence (mg/kg-dry)
Methyl Parathion	Not Detected	Not Detected	Not Detected
Phorate	Not Detected	Not Detected	Not Detected
Parathion	Not Detected	Not Detected	Not Detected
Methamidophos	Not Detected	Not Detected	Not Detected
Malathion	Not Detected	Not Detected	Not Detected
Ethoprop	Not Detected	Not Detected	Not Detected
Dicrotophos	Not Detected	Not Detected	Not Detected
Diazinon	Not Detected	Not Detected	Not Detected
Chlorpyrifos	Not Detected	Not Detected	Not Detected
Terbufos	Not Detected	Not Detected	Not Detected

Table 11F: Air Direct Reading Values

Analyte	Topside Measured Value	LCC Measure Value	Recommended Range
Carbon Dioxide	510 ppm	774 ppm	1000 ppm
Relative Humidity	63%	46%	30% - 60%
Temperature	73.2°F	70.8°F	72°F - 80°F
Carbon Monoxide	0 ppm	2.9 ppm	25 ppm (8-hr TWA)
Ozone	0 ppm	0 ppm	0.1 ppm (8-hr TWA)

Table 12F: Water Direct Reading Values

Analyte	Topside Measured Value	LCC Measured Value	Recommended Range
pH	>8.5	>8.5	6.5 - 8.5
Free Available Chlorine	0.4	0.32	> 0 mg/L; < 4 mg/L
Total Available Chlorine	0.18	0.43	> 0 mg/L; < 4 mg/L

Appendix 7: MAF GOLF (G-01) Results, Sampled on 10 July 2023

Table 1G: PCB Swipe Sampling

Location	Analyte	Result (µg/100 cm^2)	Standard (40 CFR Part 761) (µg/100 cm^2)
Digital Data Group – Surface	Total PCBs	Not Detected	10
Digital Data Group – Underside	Total PCBs	Not Detected	10
DC Power Supply (under plastic cover)	Total PCBs	Not Detected	10
AC Power Supply (under plastic cover)	Total PCBs	Not Detected	10
Battery Charger Access	Total PCBs	Not Detected	10
Control Power Supply – Right Handle	Total PCBs	Not Detected	10
Control Power Supply – Underside	Total PCBs	Not Detected	10
Left Console Display Screen	Total PCBs	Not Detected	10
Left Console Keyboard	Total PCBs	Not Detected	10
Right Console Display Screen	Total PCBs	Not Detected	10
Right Console Keyboard	Total PCBs	Not Detected	10
Fridge Bottom Handle	Total PCBs	Not Detected	10
Wing 5 LCPA – Surface	Total PCBs	Not Detected	10
Wing 5 LCPA – Underside	Total PCBs	Not Detected	10
LCC Bathroom Handle	Total PCBs	Not Detected	10
Filtron R.F. Interference Filter – Surface	Total PCBs	Not Detected	10
MPP, Automatic Switching Unit – Inside Surface	Total PCBs	Not Detected	10
Doorknob from elevator to SFC Room	Total PCBs	Not Detected	10
SFC Desk	Total PCBs	Not Detected	10
Doorknob from SFC Room to Topside	Total PCBs	Not Detected	10

Table 2G: Air Sampling Results – PCBs

Analyte	LCC Result (mg/m^3)	Topside Result (mg/m^3)
Aroclor 1016	<0.0021	<0.0021
Aroclor 1221	<0.0021	<0.0021
Aroclor 1232	<0.0021	<0.0021
Aroclor 1242	<0.0021	<0.0021
Aroclor 1248	<0.0021	<0.0021
Aroclor 1254	<0.0021	<0.0021
Aroclor 1260	<0.0021	<0.0021

Table 3G: Air Sampling Results –Organophosphates

Analyte	LCC (8hr) Result (mg/m^3)	Topside (8hr) Result (mg/m^3)	LCC (2hr) Result (mg/m^3)	Topside (2hr) Result (mg/m^3)
Chloropyrifos (Dursban)	<0.0021	<0.0021	<0.0011	<0.0011
Diazinon	<0.0021	<0.0021	<0.0011	<0.0011
Dicrotophos	<0.0021	<0.0021	<0.0011	<0.0011
Ethoprophos (Mocap)	<0.0021	<0.0021	<0.0011	<0.0011
Malathion	<0.0021	<0.0021	<0.0011	<0.0011
Methamidophos	<0.0042	<0.0042	<0.0022	<0.0022
Methyl Parathion	<0.0021	<0.0021	<0.0011	<0.0011
Parathion (Parathion Ethyl)	<0.0021	<0.0021	<0.0011	<0.0011
Phorate	<0.0021	<0.0021	<0.0011	<0.0011
Terbufos	<0.0021	<0.0021	<0.0011	<0.0011

Table 4G: Air Sampling Results – VOCs

Analyte	LCC Result ($\mu g/m^3$)	Topside Result ($\mu g/m^3$)
1,1,1,2-Tetrachloroethane	<10	<10
1,1,1-Trichloroethane	<10	<10
1,1,2,2-Tetrachloroethane	<10	<10
1,1,2-Trichloroethane	<10	<10
1,1-Dichloroethane	<10	<10
1,1-Dichloroethylene	<10	<10
1,1-Dichloropropylene	<10	<10
1,2,3-Trichlorobenzene	<10	<10
1,2,3-Trichloropropane	<10	<10
1,2,4-Trichlorobenzene	<10	<10
1,2,4-Trimethylbenzene	<10	<10
1,2-Dibromo-3-chloropropane (DBCP)	<10	<10
Ethylene Dibromide	<10	<10
1,2-Dichlorobenzene	<10	<10
1,2-Dichloroethane	<10	<10
1,2-Dichloropropane	<10	<10
1,3,5-Trimethylbenzene	<10	<10
1,3-Dichlorobenzene	<10	<10
1,3-Dichloropropane	<10	<10
1,4-Dichlorobenzene	<10	<10
2-Chlorotoluene	<10	<10
4-chlorotoluene	<10	<10
Benzene	<10	<10
Bromobenzene	<10	<10
Bromochloromethane	<10	<10
Bromodichloromethane	<10	<10
Bromoform	<10	<10
Carbon Tetrachloride	<10	<10
Chlorobenzene	<10	<10
Chloroform	<10	<10
cis-1,2-Dichloroethylene	<10	<10
cis-1,3-Dichloropropene	<10	<10
Dibromochloromethane	<10	<10
Ethylbenzene	<10	<10
Hexachlorobutadiene	<10	<10

Table 4G: Air Sampling Results – VOCs Cont.

Analyte	LCC Result ($\mu g/m^3$)	Topside Result ($\mu g/m^3$)
Isopropylbenzene	<10	<10
Methylene Chloride(Dichloromethane)	<10	<10
p+m-Xylene	<10	<10
Naphthalene	<10	<10
n-Butylbenzene	<10	<10
n-Propylbenzene	<10	<10
o-Xylene	<10	<10
p-isopropyltoluene	<10	<10
sec-butylbenzene	<10	<10
Styrene	<10	<10
tert-butylbenzene	<10	<10
Tetrachloroethylene	<10	<10
Toluene	<10	<10
trans-1,2-Dichloroethylene	<10	<10
trans-1,3-Dichloropropene	<10	<10
Trichloroethylene	<10	<10

Table 5G: Water Sampling Results – Nitrate/Nitrite

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Nitrate/Nitrite (Total)	1.3	1.2	10

Table 6G: Water Sampling Results – Dioxins

Analyte	Topside Result (pg/L)	LCC Result (pg/L)	Maximum Containment Level (pg/L)
2-3-7-8-Tetrachlorodibenzo-p-dioxin	<4.2	<4.3	30

Table 7G: Water Sampling Results – Diquat/Paraquat

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Diquat	<0.0004	<0.0004	0.02
Paraquat	<0.0004	<0.0004	N/A

Table 8G: Water Sampling Results – PCBs

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
PCB-1016	<0.00008	<0.00008	0.002
PCB-1221	<0.0001	<0.0001	0.002
PCB-1232	<0.0001	<0.0001	0.002
PCB-1242	<0.0001	<0.0001	0.002
PCB-1248	<0.0001	<0.0001	0.002
PCB-1254	<0.0001	<0.0001	0.002
PCB-1260	<0.0001	<0.0001	0.002
Total PCBs	<0.0001	<0.0001	0.002

Table 9G: Water Sampling Results – Pesticides/SVOCs

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
1-Methylnapthalene	<0.00011	<0.0001	N/A
2-Methylnapthalene	<0.00011	<0.0001	N/A
4,4'-DDD	<0.00011	<0.0001	N/A
4,4'-DDE	<0.00011	<0.0001	N/A
4,4'-DDT	<0.00011	<0.0001	N/A
Acenaphthene	<0.00011	<0.0001	N/A
Acenaphthylene	<0.00011	<0.0001	N/A
Alachlor	<0.00011	<0.0001	0.002
Aldrin	<0.00011	<0.0001	0.00001
alpha-Chlordane	<0.00011	<0.0001	N/A

Table 9G: Water Sampling Results – Pesticides/SVOCs Cont.

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Anthracene	<0.00011	<0.0001	N/A
Atrazine	<0.00011	<0.0001	0.003
Benzo[a]anthracene	<0.00011	<0.0001	0.0001
Benzo[a]pyrene	<0.000022	<0.000021	0.0002
Benzo[b]fluoranthene	<0.00011	<0.0001	0.0002
Benzo[g,h,i]perylene	<0.00011	<0.0001	N/A
Benzo[k]fluoranthene	<0.00011	<0.0001	0.0002
Bromacil	<0.00011	<0.0001	N/A
Butachlor	<0.00011	<0.0001	N/A
Butylbenzylphthalate	<0.0011	<0.001	N/A
Chlorothalonil	<0.00011	<0.0001	N/A
Chrysene	<0.00011	<0.0001	0.0002
Cyanazine	<0.00011	<0.0001	N/A
Deisopropylatrazine	<0.0011	<0.001	N/A
Desethylatrazine	<0.0011	<0.001	N/A
Di(2-ethylhexyl)phthalate	<0.00065	<0.00062	0.006
Di(2-ethylhexyl)adipate	<0.00065	<0.00062	0.40
Diazinon	<0.00011	<0.0001	N/A
Dibenz[a,h]anthracene	<0.00011	<0.0001	0.0003
Dieldrin	<0.00011	<0.0001	N/A
Diethylphthalate	<0.0011	<0.001	N/A
Dimethoate	<0.00054	<0.00052	N/A
Dimethylphthalate	<0.0011	<0.001	N/A
Di-n-butylphthalate	<0.0022	<0.0021	N/A
Di-n-octylphthalate	<0.0022	<0.0021	N/A
Endrin	<0.000011	<0.0001	0.002
EPTC	<0.00011	<0.0001	N/A
Fluoranthene	<0.00011	<0.0001	N/A
Fluorene	<0.00011	<0.0001	N/A
gamma-BHC (Lindane)	<0.000022	<0.000021	0.0002
gamma-Chlordane	<0.00011	<0.0001	0.100
Heptachlor	<0.000011	<0.0001	0.0004
Heptachlor Epoxide	<0.000011	<0.0001	0.0002
Hexachlorobenzene	<0.00011	<0.0001	0.001
Hexachlorocyclopentadiene	<0.00011	<0.0001	0.05
Indeno[1,2,3-cd]pyrene	<0.00011	<0.0001	0.0004
Malathion	<0.00011	<0.0001	N/A

Table 9G: Water Sampling Results – Pesticides/SVOCs Cont.

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Methoxychlor	<0.00011	<0.0001	0.04
Metolachlor	<0.00011	<0.0001	N/A
Metribuzin	<0.00011	<0.0001	N/A
Molinate	<0.00011	<0.0001	N/A
Naphthalene	<0.00011	<0.0001	N/A
Parathion	<0.00054	<0.00052	N/A
Phenanthrene	<0.00011	<0.0001	N/A
Prometryn	<0.00011	<0.0001	N/A
Propachlor	<0.00011	<0.0001	N/A
Pyrene	<0.00011	<0.0001	0.0002
Simazine	<0.000076	<0.000072	0.004
Terbacil	<0.00011	<0.0001	N/A
Thiobencarb	<0.00011	<0.0001	N/A
trans-Nonachlor	<0.00011	<0.0001	0.002
Trifluralin	<0.00011	<0.0001	N/A

Table 10G: Soil Sampling Results

Analyte	NE Corner outside fence (mg/kg-dry)	NW corner outside fence (mg/kg-dry)	SW corner outside fence (mg/kg-dry)
Methyl Parathion	Not Detected	Not Detected	Not Detected
Phorate	Not Detected	Not Detected	Not Detected
Parathion	Not Detected	Not Detected	Not Detected
Methamidophos	Not Detected	Not Detected	Not Detected
Malathion	Not Detected	Not Detected	Not Detected
Ethoprop	Not Detected	Not Detected	Not Detected
Dicrotophos	Not Detected	Not Detected	Not Detected
Diazinon	Not Detected	Not Detected	Not Detected
Chlorpyrifos	Not Detected	Not Detected	Not Detected
Terbufos	Not Detected	Not Detected	Not Detected

Table 10G: Soil Sampling Results Cont.

Analyte	SE corner outside fence (mg/kg-dry)	NE corner inside fence over capsule (mg/kg-dry)	NE corner inside fence near air intake vent (mg/kg-dry)
Methyl Parathion	Not Detected	Not Detected	Not Detected
Phorate	Not Detected	Not Detected	Not Detected
Parathion	Not Detected	Not Detected	Not Detected
Methamidophos	Not Detected	Not Detected	Not Detected
Malathion	Not Detected	Not Detected	Not Detected
Ethoprop	Not Detected	Not Detected	Not Detected
Dicrotophos	Not Detected	Not Detected	Not Detected
Diazinon	Not Detected	Not Detected	Not Detected
Chlorpyrifos	Not Detected	Not Detected	Not Detected
Terbufos	Not Detected	Not Detected	Not Detected

Table 11G: Air Direct Reading Values

Analyte	Topside Measured Value	LCC Measure Value	Recommended Range
Carbon Dioxide	484 ppm	658 ppm	1000 ppm
Relative Humidity	60%	35.8%	30% - 60%
Temperature	71.8°F	70.4°F	72°F - 80°F
Carbon Monoxide	0.5 ppm	6.3 ppm	25 ppm (8-hr TWA)
Ozone	0 ppm	0 ppm	0.1 ppm (8-hr TWA)

Table 12G: Water Direct Reading Values

Analyte	Topside Measured Value	LCC Measured Value	Recommended Range
pH	8.3	8.1	6.5 - 8.5
Free Available Chlorine	0.24	0.74	> 0 mg/L; < 4 mg/L
Total Available Chlorine	0.3	0.74	> 0 mg/L; < 4 mg/L

Appendix 8: MAF HOTEL (H-01) Results, Sampled on 12 July 2023

Table 1H: PCB Swipe Sampling

Location	Analyte	Result (µg/100 cm^2)	Standard (40 CFR Part 761) (µg/100 cm^2)
Digital Data Group – Surface	Total PCBs	Not Detected	10
Digital Data Group – Underside	Total PCBs	Not Detected	10
DC Power Supply – Under Plastic Cover	Total PCBs	Not Detected	10
AC Power Supply – Under Plastic Cover	Total PCBs	Not Detected	10
Battery Charger Access	Total PCBs	Not Detected	10
Control Power Supply – Right Handle	Total PCBs	Not Detected	10
Control Power Supply – Underside	Aroclor 1254	2.26	10
	Total PCBs	2.26	10
Fridge Bottom Handle	Total PCBs	Not Detected	10
Right Console Display Screen	Total PCBs	Not Detected	10
Right Console Keyboard	Total PCBs	Not Detected	10
Left Console Display Screen	Total PCBs	Not Detected	10
Left Console Keyboard	Total PCBs	Not Detected	10
Wing 5 LCPA – Surface	Total PCBs	Not Detected	10
Wing 5 LCPA – Underside	Total PCBs	Not Detected	10
LCC Bathroom Handle	Total PCBs	Not Detected	10
Ceiling Entryway Box in Capsule (PCB Sticker)	Total PCBs	Not Detected	10
MPP, Automatic Switching Unit – Surface	Total PCBs	Not Detected	10
Door Handle from Elevator to SFC Room	Total PCBs	Not Detected	10
SFC Room Desk	Total PCBs	Not Detected	10
Door Handle from SFC Room to Common Area	Total PCBs	Not Detected	10

Table 2H: Air Sampling Results – PCBs

Analyte	LCC Result (mg/m^3)	Topside Result (mg/m^3)
Aroclor 1016	<0.0012	<0.0014
Aroclor 1221	<0.0012	<0.0014
Aroclor 1232	<0.0012	<0.0014
Aroclor 1242	<0.0012	<0.0014
Aroclor 1248	<0.0012	<0.0014
Aroclor 1254	<0.0012	<0.0014
Aroclor 1260	<0.0012	<0.0014

Table 3H: Air Sampling Results – Organophosphates

Analyte	LCC (8hr) Result (mg/m^3)	Topside (8hr) Result (mg/m^3)	LCC (2hr) Result (mg/m^3)	Topside (2hr) Result (mg/m^3)
Chloropyrifos (Dursban)	<0.0026	<0.0026	<0.0010	<0.0010
Diazinon	<0.0026	<0.0026	<0.0010	<0.0010
Dicrotophos	<0.0026	<0.0026	<0.0010	<0.0010
Ethoprophos (Mocap)	<0.0026	<0.0026	<0.0010	<0.0010
Malathion	<0.0026	<0.0026	<0.0010	<0.0010
Methamidophos	<0.0052	<0.0052	<0.0021	<0.0021
Methyl Parathion	<0.0026	<0.0026	<0.0010	<0.0010
Parathion (Parathion Ethyl)	<0.0026	<0.0026	<0.0010	<0.0010
Phorate	<0.0026	<0.0026	<0.0010	<0.0010
Terbufos	<0.0026	<0.0026	<0.0010	<0.0010

Table 4H: Air Sampling Results – VOCs

Analyte	LCC Result (µg/m^3)	Topside Result (µg/m^3)
1,1,1,2-Tetrachloroethane	<10	<10
1,1,1-Trichloroethane	<10	<10
1,1,2,2-Tetrachloroethane	<10	<10
1,1,2-Trichloroethane	<10	<10
1,1-Dichloroethane	<10	<10
1,1-Dichloroethylene	<10	<10
1,1-Dichloropropylene	<10	<10
1,2,3-Trichlorobenzene	<10	<10
1,2,3-Trichloropropane	<10	<10
1,2,4-Trichlorobenzene	<10	<10
1,2,4-Trimethylbenzene	<10	<10
1,2-Dibromo-3-chloropropane (DBCP)	<10	<10
Ethylene Dibromide	<10	<10
1,2-Dichlorobenzene	<10	<10
1,2-Dichloroethane	<10	<10
1,2-Dichloropropane	<10	<10
1,3,5-Trimethylbenzene	<10	<10
1,3-Dichlorobenzene	<10	<10
1,3-Dichloropropane	<10	<10
1,4-Dichlorobenzene	<10	<10
2-Chlorotoluene	<10	<10
4-chlorotoluene	<10	<10
Benzene	<10	<10
Bromobenzene	<10	<10
Bromochloromethane	<10	<10
Bromodichloromethane	<10	<10
Bromoform	<10	<10
Carbon Tetrachloride	<10	<10
Chlorobenzene	<10	<10
Chloroform	<10	<10
cis-1,2-Dichloroethylene	<10	<10
cis-1,3-Dichloropropene	<10	<10
Dibromochloromethane	<10	<10
Ethylbenzene	<10	<10
Hexachlorobutadiene	<10	<10

Table 4H: Air Sampling Results – VOCs Cont.

Analyte	LCC Result ($\mu g/m^3$)	Topside Result ($\mu g/m^3$)
Isopropylbenzene	<10	<10
Methylene Chloride(Dichloromethane)	<10	<10
p+m-Xylene	<10	<10
Naphthalene	<10	<10
n-Butylbenzene	<10	<10
n-Propylbenzene	<10	<10
o-Xylene	<10	<10
p-isopropyltoluene	<10	<10
sec-butylbenzene	<10	<10
Styrene	<10	<10
tert-butylbenzene	<10	<10
Tetrachloroethylene	<10	<10
Toluene	<10	<10
trans-1,2-Dichloroethylene	<10	<10
trans-1,3-Dichloropropene	<10	<10
Trichloroethylene	<10	<10

Table 5H: Water Sampling Results – Nitrate/Nitrite

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Nitrate/Nitrite (Total)	2.1	2.0	10

Table 6H: Water Sampling Results – Dioxins

Analyte	Topside Result (pg/L)	LCC Result (pg/L)	Maximum Containment Level (pg/L)
2-3-7-8-Tetrachlorodibenzo-p-dioxin	<4.4	<4.3	30

Table 7H: Water Sampling Results – Diquat/Paraquat

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Diquat	<0.0004	<0.0004	0.02
Paraquat	<0.0004	<0.0004	N/A

Table 8H: Water Sampling Results – PCBs

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
PCB-1016	<0.00008	<0.00008	0.002
PCB-1221	<0.0001	<0.0001	0.002
PCB-1232	<0.0001	<0.0001	0.002
PCB-1242	<0.0001	<0.0001	0.002
PCB-1248	<0.0001	<0.0001	0.002
PCB-1254	<0.0001	<0.0001	0.002
PCB-1260	<0.0001	<0.0001	0.002
Total PCBs	<0.0001	<0.0001	0.002

Table 9H: Water Sampling Results – Pesticides/SVOCs

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
1-Methylnapthalene	<0.00010	<0.00010	N/A
2-Methylnapthalene	<0.00010	<0.00010	N/A
4,4'-DDD	<0.00010	<0.00010	N/A
4,4'-DDE	<0.00010	<0.00010	N/A
4,4'-DDT	<0.00010	<0.00010	N/A
Acenaphthene	<0.00010	<0.00010	N/A
Acenaphthylene	<0.00010	<0.00010	N/A
Alachlor	<0.00010	<0.00010	0.002
Aldrin	<0.00010	<0.00010	0.00001
alpha-Chlordane	<0.00010	<0.00010	N/A

Table 9H: Water Sampling Results – Pesticides/SVOCs Cont.

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Anthracene	<0.00010	<0.00010	N/A
Atrazine	<0.00010	<0.00010	0.003
Benzo[a]anthracene	<0.00010	<0.00010	0.0001
Benzo[a]pyrene	<0.000021	<0.000021	0.0002
Benzo[b]fluoranthene	<0.00010	<0.00010	0.0002
Benzo[g,h,i]perylene	<0.00010	<0.00010	N/A
Benzo[k]fluoranthene	<0.00010	<0.00010	0.0002
Bromacil	<0.00010	<0.00010	N/A
Butachlor	<0.00010	<0.00010	N/A
Butylbenzylphthalate	<0.0010	<0.0010	N/A
Chlorothalonil	<0.00010	<0.00010	N/A
Chrysene	<0.00010	<0.00010	0.0002
Cyanazine	<0.00010	<0.00010	N/A
Deisopropylatrazine	<0.0010	<0.0010	N/A
Desethylatrazine	<0.0010	<0.0010	N/A
Di(2-ethylhexyl)phthalate	<0.00062	<0.00063	0.006
Di(2-ethylhexyl)adipate	<0.00062	<0.00063	0.40
Diazinon	<0.00010	<0.00010	N/A
Dibenz[a,h]anthracene	<0.00010	<0.00010	0.0003
Dieldrin	<0.00010	<0.00010	N/A
Diethylphthalate	<0.0010	<0.0010	N/A
Dimethoate	<0.00051	<0.00052	N/A
Dimethylphthalate	<0.0010	<0.0010	N/A
Di-n-butylphthalate	0.0058	0.004	N/A
Di-n-octylphthalate	<0.0021	<0.0021	N/A
Endrin	<0.000010	<0.000010	0.002
EPTC	<0.00010	<0.00010	N/A
Fluoranthene	<0.00010	<0.00010	N/A
Fluorene	<0.00010	<0.00010	N/A
gamma-BHC (Lindane)	<0.000021	<0.000021	0.0002
gamma-Chlordane	<0.00010	<0.00010	0.100
Heptachlor	<0.000010	<0.000010	0.0004
Heptachlor Epoxide	<0.000010	<0.000010	0.0002
Hexachlorobenzene	<0.00010	<0.00010	0.001
Hexachlorocyclopentadiene	<0.00010	<0.00010	0.05
Indeno[1,2,3-cd]pyrene	<0.00010	<0.00010	0.0004
Malathion	<0.00010	<0.00010	N/A

Table 9H: Water Sampling Results – Pesticides/SVOCs Cont.

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Methoxychlor	<0.00010	<0.00010	0.04
Metolachlor	<0.00010	<0.00010	N/A
Metribuzin	<0.00010	<0.00010	N/A
Molinate	<0.00010	<0.00010	N/A
Naphthalene	<0.00010	<0.00010	N/A
Parathion	<0.00051	<0.00052	N/A
Phenanthrene	<0.00010	<0.00010	N/A
Prometryn	<0.00010	<0.00010	N/A
Propachlor	<0.00010	<0.00010	N/A
Pyrene	<0.00010	<0.00010	0.0002
Simazine	<0.000072	<0.000073	0.004
Terbacil	<0.00010	<0.00010	N/A
Thiobencarb	<0.00010	<0.00010	N/A
trans-Nonachlor	<0.00010	<0.00010	0.002
Trifluralin	<0.00010	<0.00010	N/A

Table 10H: Soil Sampling Results

Analyte	NE Corner Outside Fence (mg/kg-dry)	NW Corner Outside Fence (mg/kg-dry)	SW Corner Outside Fence (mg/kg-dry)
Methyl Parathion	Not Detected	Not Detected	Not Detected
Phorate	Not Detected	Not Detected	Not Detected
Parathion	Not Detected	Not Detected	Not Detected
Methamidophos	Not Detected	Not Detected	Not Detected
Malathion	Not Detected	Not Detected	Not Detected
Ethoprop	Not Detected	Not Detected	Not Detected
Dicrotophos	Not Detected	Not Detected	Not Detected
Diazinon	Not Detected	Not Detected	Not Detected
Chlorpyrifos	Not Detected	Not Detected	Not Detected
Terbufos	Not Detected	Not Detected	Not Detected

Table 10H: Soil Sampling Results Cont.

Analyte	SE Corner Outside Fence (mg/kg-dry)	NE Corner Inside Fence Over Capsule (mg/kg-dry)	NE Corner Inside Fence Near Air Intake Vent (mg/kg-dry)
Methyl Parathion	Not Detected	Not Detected	Not Detected
Phorate	Not Detected	Not Detected	Not Detected
Parathion	Not Detected	Not Detected	Not Detected
Methamidophos	Not Detected	Not Detected	Not Detected
Malathion	Not Detected	Not Detected	Not Detected
Ethoprop	Not Detected	Not Detected	Not Detected
Dicrotophos	Not Detected	Not Detected	Not Detected
Diazinon	Not Detected	Not Detected	Not Detected
Chlorpyrifos	Not Detected	Not Detected	Not Detected
Terbufos	Not Detected	Not Detected	Not Detected

Table 11H: Air Direct Reading Values

Analyte	Topside Measured Value	LCC Measure Value	Recommended Range
Carbon Dioxide	763 ppm	503 ppm	1000 ppm
Relative Humidity	49.3%	32.3%	30% - 60%
Temperature	70°F	74.6°F	72°F - 80°F
Carbon Monoxide	0.3 ppm	2 ppm	25 ppm (8-hr TWA)
Ozone	0 ppm	0 ppm	0.1 ppm (8-hr TWA)

Table 12H: Water Direct Reading Values

Analyte	Topside Measured Value	LCC Measured Value	Recommended Range
pH	8.0	8.0	6.5 - 8.5
Free Available Chlorine	0.63	0.2	> 0 mg/L; < 4 mg/L
Total Available Chlorine	0.82	0.28	> 0 mg/L; < 4 mg/L

Appendix 9: MAF INDIA (I-01) Results, Sampled on 11 July 2023

Table 1I: PCB Swipe Sampling

Location	Analyte	Result (µg/100 cm^2)	Standard (40 CFR Part 761) (µg/100 cm^2)
Receiver Digital Data (SN: 0003055) – Surface	Total PCBs	Not Detected	10
Receiver Digital Data (SN: 0003055) – Underside	Total PCBs	Not Detected	10
Battery Charger Access – Surface (PCB sticker)	Total PCBs	Not Detected	10
Battery Charger Access – Ground Level (PCB sticker)	Total PCBs	Not Detected	10
Left Console Keyboard	Total PCBs	Not Detected	10
Left Side Display Screen	Total PCBs	Not Detected	10
Right Console Keyboard	Total PCBs	Not Detected	10
Right Side Display Screen	Total PCBs	Not Detected	10
Wing 5 LCPA Panel – Surface	Total PCBs	Not Detected	10
Wing 5 LCPA Panel – Underside	Total PCBs	Not Detected	10
Power Supply 12OV Circuit Breaker (SN:0000083) – Surface	Total PCBs	Not Detected	10
LCC Ceiling Entry Way Box	Total PCBs	Not Detected	10
EMI filter – Surface in LCEB	Total PCBs	Not Detected	10
EMI filter – Gound Level in LCEB	Total PCBs	Not Detected	10
MPP Access Cover	Total PCBs	Not Detected	10
Elevator Buttons	Total PCBs	Not Detected	10
MEADS/KL86 Buttons in FSC	Total PCBs	Not Detected	10
Motorola bottom right button in FSC	Total PCBs	Not Detected	10
SIN phone to call LCC	Total PCBs	Not Detected	10
Common Dining Room Table	Total PCBs	Not Detected	10

Table 2I: Air Sampling Results – PCBs

Analyte	LCC Result (mg/m^3)	Topside Result (mg/m^3)
Aroclor 1016	<0.0012	<0.0012
Aroclor 1221	<0.0012	<0.0012
Aroclor 1232	<0.0012	<0.0012
Aroclor 1242	<0.0012	<0.0012
Aroclor 1248	<0.0012	<0.0012
Aroclor 1254	<0.0012	<0.0012
Aroclor 1260	<0.0012	<0.0012

Table 3I: Air Sampling Results – Organophosphates

Analyte	LCC (8hr) Result (mg/m^3)	Topside (8hr) Result (mg/m^3)	LCC (2hr) Result (mg/m^3)	Topside (2hr) Result (mg/m^3)
Chloropyrifos (Dursban)	<0.0021	<0.0021	<0.0083	<0.0083
Diazinon	<0.0021	<0.0021	<0.0083	<0.0083
Dicrotophos	<0.0021	<0.0021	<0.0083	<0.0083
Ethoprophos (Mocap)	<0.0021	<0.0021	<0.0083	<0.0083
Malathion	<0.0021	<0.0021	<0.0083	<0.0083
Methamidophos	<0.0042	<0.0042	<0.017	<0.017
Methyl Parathion	<0.0021	<0.0021	<0.0083	<0.0083
Parathion (Parathion Ethyl)	<0.0021	<0.0021	<0.0083	<0.0083
Phorate	<0.0021	<0.0021	<0.0083	<0.0083
Terbufos	<0.0021	<0.0021	<0.0083	<0.0083

Table 4I: Air Sampling Results – VOCs

Analyte	LCC Result ($\mu g/m^3$)	Topside Result ($\mu g/m^3$)
1,1,1,2-Tetrachloroethane	<10	<10
1,1,1-Trichloroethane	<10	<10
1,1,2,2-Tetrachloroethane	<10	<10
1,1,2-Trichloroethane	<10	<10
1,1-Dichloroethane	<10	<10
1,1-Dichloroethylene	<10	<10
1,1-Dichloropropylene	<10	<10
1,2,3-Trichlorobenzene	<10	<10
1,2,3-Trichloropropane	<10	<10
1,2,4-Trichlorobenzene	<10	<10
1,2,4-Trimethylbenzene	<10	<10
1,2-Dibromo-3-chloropropane (DBCP)	<10	<10
Ethylene Dibromide	<10	<10
1,2-Dichlorobenzene	<10	<10
1,2-Dichloroethane	<10	<10
1,2-Dichloropropane	<10	<10
1,3,5-Trimethylbenzene	<10	<10
1,3-Dichlorobenzene	<10	<10
1,3-Dichloropropane	<10	<10
1,4-Dichlorobenzene	<10	<10
2-Chlorotoluene	<10	<10
4-chlorotoluene	<10	<10
Benzene	<10	<10
Bromobenzene	<10	<10
Bromochloromethane	<10	<10
Bromodichloromethane	<10	<10
Bromoform	<10	<10
Carbon Tetrachloride	<10	<10
Chlorobenzene	<10	<10
Chloroform	<10	<10
cis-1,2-Dichloroethylene	<10	<10
cis-1,3-Dichloropropene	<10	<10
Dibromochloromethane	<10	<10
Ethylbenzene	<10	<10
Hexachlorobutadiene	<10	<10

Table 4I: Air Sampling Results – VOCs Cont.

Analyte	LCC Result ($\mu g/m^3$)	Topside Result ($\mu g/m^3$)
Isopropylbenzene	<10	<10
Methylene Chloride(Dichloromethane)	<10	<10
p+m-Xylene	<10	<10
Naphthalene	<10	<10
n-Butylbenzene	<10	<10
n-Propylbenzene	<10	<10
o-Xylene	<10	<10
p-isopropyltoluene	<10	<10
sec-butylbenzene	<10	<10
Styrene	<10	<10
tert-butylbenzene	<10	<10
Tetrachloroethylene	<10	<10
Toluene	<10	<10
trans-1,2-Dichloroethylene	<10	<10
trans-1,3-Dichloropropene	<10	<10
Trichloroethylene	<10	<10

Table 5I: Water Sampling Results – Nitrate/Nitrite

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Nitrate/Nitrite (Total)	4.6	4.6	10

Table 6I: Water Sampling Results – Dioxins

Analyte	Topside Result (pg/L)	LCC Result (pg/L)	Maximum Containment Level (pg/L)
2-3-7-8-Tetrachlorodibenzo-p-dioxin	<4.0	<4.2	30

Table 7I: Water Sampling Results – Diquat/Paraquat

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Diquat	<0.0004	<0.0004	0.02
Paraquat	<0.0004	<0.0004	N/A

Table 8I: Water Sampling Results – PCBs

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
PCB-1016	<0.00008	<0.00008	0.002
PCB-1221	<0.0001	<0.0001	0.002
PCB-1232	<0.0001	<0.0001	0.002
PCB-1242	<0.0001	<0.0001	0.002
PCB-1248	<0.0001	<0.0001	0.002
PCB-1254	<0.0001	<0.0001	0.002
PCB-1260	<0.0001	<0.0001	0.002
Total PCBs	<0.0001	<0.0001	0.002

Table 9I: Water Sampling Results – Pesticides/SVOCs

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
1-Methylnapthalene	<0.00011	<0.00011	N/A
2-Methylnapthalene	<0.00011	<0.00011	N/A
4,4'-DDD	<0.00011	<0.00011	N/A
4,4'-DDE	<0.00011	<0.00011	N/A
4,4'-DDT	<0.00011	<0.00011	N/A
Acenaphthene	<0.00011	<0.00011	N/A
Acenaphthylene	<0.00011	<0.00011	N/A
Alachlor	<0.00011	<0.00011	0.002
Aldrin	<0.00011	<0.00011	0.00001
alpha-Chlordane	<0.00011	<0.00011	N/A

Table 9I: Water Sampling Results – Pesticides/SVOCs Cont.

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Anthracene	<0.00011	<0.00011	N/A
Atrazine	<0.00011	<0.00011	0.003
Benzo[a]anthracene	<0.00011	<0.00011	0.0001
Benzo[a]pyrene	<0.000021	<0.000021	0.0002
Benzo[b]fluoranthene	<0.00011	<0.00011	0.0002
Benzo[g,h,i]perylene	<0.00011	<0.00011	N/A
Benzo[k]fluoranthene	<0.00011	<0.00011	0.0002
Bromacil	<0.00011	<0.00011	N/A
Butachlor	<0.00011	<0.00011	N/A
Butylbenzylphthalate	<0.0011	<0.0011	N/A
Chlorothalonil	<0.00011	<0.00011	N/A
Chrysene	<0.00011	<0.00011	0.0002
Cyanazine	<0.00011	<0.00011	N/A
Deisopropylatrazine	<0.0011	<0.0011	N/A
Desethylatrazine	<0.0011	<0.0011	N/A
Di(2-ethylhexyl)phthalate	<0.00063	<0.00064	0.006
Di(2-ethylhexyl)adipate	<0.00063	<0.00064	0.40
Diazinon	<0.00011	<0.00011	N/A
Dibenz[a,h]anthracene	<0.00011	<0.00011	0.0003
Dieldrin	<0.00011	<0.00011	N/A
Diethylphthalate	<0.0011	<0.0011	N/A
Dimethoate	<0.00053	<0.00053	N/A
Dimethylphthalate	<0.0011	<0.0021	N/A
Di-n-octylphthalate	<0.0021	<0.0021	N/A
Endrin	<0.000011	<0.000011	0.002
EPTC	<0.00011	<0.00011	N/A
Fluoranthene	<0.00011	<0.00011	N/A
Fluorene	<0.00011	<0.00011	N/A
gamma-BHC (Lindane)	<0.000021	<0.000021	N/A
gamma-Chlordane	<0.00011	<0.00011	0.0002
Heptachlor	<0.000042	<0.000042	0.0004
Heptachlor Epoxide	<0.000021	<0.000021	0.0002
Hexachlorobenzene	<0.00011	<0.00011	0.001
Hexachlorocyclopentadiene	<0.00011	<0.00011	0.05
Indeno[1,2,3-cd]pyrene	<0.00011	<0.00011	0.0004
Malathion	<0.00011	<0.00011	N/A

Table 9I: Water Sampling Results – Pesticides/SVOCs Cont.

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Methoxychlor	<0.00011	<0.00011	0.04
Metolachlor	<0.00011	<0.00011	N/A
Metribuzin	<0.00011	<0.00011	N/A
Molinate	<0.00011	<0.00011	N/A
Naphthalene	<0.00011	<0.00011	N/A
Parathion	<0.00053	<0.00053	N/A
Phenanthrene	<0.00011	<0.00011	N/A
Prometryn	<0.00011	<0.00011	N/A
Propachlor	<0.00011	<0.00011	N/A
Pyrene	<0.00011	<0.00011	0.0002
Simazine	<0.000074	<0.000074	0.004
Terbacil	<0.00011	<0.00011	N/A
Thiobencarb	<0.00011	<0.00011	N/A
trans-Nonachlor	<0.00011	<0.00011	0.002
Trifluralin	<0.00011	<0.00011	N/A

Table 10I: Soil Sampling Results

Analyte	5 ft from MAF intake vent (mg/kg-dry)	17 ft from UHF Radio Antenna (mg/kg-dry)	SW of MAF, 17 ft 5 in from fence post corner (mg/kg-dry)
Methyl Parathion	Not Detected	Not Detected	Not Detected
Phorate	Not Detected	Not Detected	Not Detected
Parathion	Not Detected	Not Detected	Not Detected
Methamidophos	Not Detected	Not Detected	Not Detected
Malathion	Not Detected	Not Detected	Not Detected
Ethoprop	Not Detected	Not Detected	Not Detected
Dicrotophos	Not Detected	Not Detected	Not Detected
Diazinon	Not Detected	Not Detected	Not Detected
Chlorpyrifos	Not Detected	Not Detected	Not Detected
Terbufos	Not Detected	Not Detected	Not Detected

Table 10I: Soil Sampling Results Cont.

Analyte	NW of MAF, 14 ft from fence post corner (mg/kg-dry)	NE of MAF, 6 ft from fence post corner (mg/kg-dry)	SE of MAF, 20 ft from fence post corner (mg/kg-dry)
Methyl Parathion	Not Detected	Not Detected	Not Detected
Phorate	Not Detected	Not Detected	Not Detected
Parathion	Not Detected	Not Detected	Not Detected
Methamidophos	Not Detected	Not Detected	Not Detected
Malathion	Not Detected	Not Detected	Not Detected
Ethoprop	Not Detected	Not Detected	Not Detected
Dicrotophos	Not Detected	Not Detected	Not Detected
Diazinon	Not Detected	Not Detected	Not Detected
Chlorpyrifos	Not Detected	Not Detected	Not Detected
Terbufos	Not Detected	Not Detected	Not Detected

Table 11I: Air Direct Reading Values

Analyte	Topside Measured Value	LCC Measure Value	Recommended Range
Carbon Dioxide	470 ppm	430 ppm	1000 ppm
Relative Humidity	56%	36%	30% - 60%
Temperature	69.5°F	73°F	72°F - 80°F
Carbon Monoxide	0.4 ppm	1.2 ppm	25 ppm (8-hr TWA)
Ozone	0 ppm	0 ppm	0.1 ppm (8-hr TWA)

Table 12I: Water Direct Reading Values

Analyte	Topside Measured Value	LCC Measured Value	Recommended Range
pH	>8.5	>8.5	6.5 - 8.5
Free Available Chlorine	1.04	0.36	> 0 mg/L; < 4 mg/L
Total Available Chlorine	0.99	0.39	> 0 mg/L; < 4 mg/L

Appendix 10: MAF JULIET (J-01) Results, Sampled on 11 July 2023

Table 1J: PCB Swipe Sampling

Location	Analyte	Result (µg/100 cm^2)	Standard (40 CFR Part 761) (µg/100 cm^2)
Receiver Digital Data (SN: 0003054) – Surface	Total PCBs	Not Detected	10
Receiver Digital Data (SN: 0003054) – Underside	Total PCBs	Not Detected	10
Battery Access Charger – Surface (PCB sticker)	Total PCBs	Not Detected	10
Battery Access Charger – Ground Level (PCB sticker)	Total PCBs	Not Detected	10
Left Console Keyboard	Total PCBs	Not Detected	10
Left Console Display Screen	Total PCBs	Not Detected	10
Right Console Keyboard	Aroclor 1254	1.07	10
	Total PCBs	1.07	10
Right Console Display Screen	Total PCBs	Not Detected	10
Wing 5 LCPA Panel (SN:12-26601/5-013) – Surface	Total PCBs	Not Detected	10
Wing 5 LCPA Panel (SN:12-26601/5-013) – Underside	Total PCBs	Not Detected	10
LCC Ceiling Entry Way Box (PCB sticker)	Total PCBs	Not Detected	10
EMI Filters – Surface (PCB sticker)	Total PCBs	Not Detected	10
EMI Filters – Ground Level (PCB sticker)	Total PCBs	Not Detected	10
Command Message Processing Group, Power Supply Box – Surface	Total PCBs	Not Detected	10
Command Message Processing Group, Power Supply Box – Underside	Total PCBs	Not Detected	10
MPP Access Cover	Total PCBs	Not Detected	10
Elevator Buttons	Total PCBs	Not Detected	10
MEADS/KL86 Buttons in SFC Room	Total PCBs	Not Detected	10
Motorola Radio Bottom Right Button (SFC Room)	Total PCBs	Not Detected	10
Common Room Dining Table	Total PCBs	Not Detected	10

Table 2J: Air Sampling Results – PCBs

Analyte	LCC Result (mg/m^3)	Topside Result (mg/m^3)
Aroclor 1016	<0.0012	<0.0012
Aroclor 1221	<0.0012	<0.0012
Aroclor 1232	<0.0012	<0.0012
Aroclor 1242	<0.0012	<0.0012
Aroclor 1248	<0.0012	<0.0012
Aroclor 1254	<0.0012	<0.0012
Aroclor 1260	<0.0012	<0.0012

Table 3J: Air Sampling Results –Organophosphates

Analyte	LCC (8hr) Result (mg/m^3)	Topside (8hr) Result (mg/m^3)	LCC (2hr) Result (mg/m^3)	Topside (2hr) Result (mg/m^3)
Chloropyrifos (Dursban)	<0.0025	<0.0026	<0.0010	<0.0010
Diazinon	<0.0025	<0.0026	<0.0010	<0.0010
Dicrotophos	<0.0025	<0.0026	<0.0010	<0.0010
Ethoprophos (Mocap)	<0.0025	<0.0026	<0.0010	<0.0010
Malathion	<0.0025	<0.0026	<0.0010	<0.0010
Methamidophos	<0.0051	<0.0051	<0.0021	<0.0021
Methyl Parathion	<0.0025	<0.0026	<0.0010	<0.0010
Parathion (Parathion Ethyl)	<0.0025	<0.0026	<0.0010	<0.0010
Phorate	<0.0025	<0.0026	<0.0010	<0.0010
Terbufos	<0.0025	<0.0026	<0.0010	<0.0010

Table 4J: Air Sampling Results – VOCs

Analyte	LCC Result (µg/m^3)	Topside Result (µg/m^3)
1,1,1,2-Tetrachloroethane	<10	<10
1,1,1-Trichloroethane	<10	<10
1,1,2,2-Tetrachloroethane	<10	<10
1,1,2-Trichloroethane	<10	<10
1,1-Dichloroethane	<10	<10
1,1-Dichloroethylene	<10	<10
1,1-Dichloropropylene	<10	<10
1,2,3-Trichlorobenzene	<10	<10
1,2,3-Trichloropropane	<10	<10
1,2,4-Trichlorobenzene	<10	<10
1,2,4-Trimethylbenzene	<10	<10
1,2-Dibromo-3-chloropropane (DBCP)	<10	<10
Ethylene Dibromide	<10	<10
1,2-Dichlorobenzene	<10	<10
1,2-Dichloroethane	<10	<10
1,2-Dichloropropane	<10	<10
1,3,5-Trimethylbenzene	<10	<10
1,3-Dichlorobenzene	<10	<10
1,3-Dichloropropane	<10	<10
1,4-Dichlorobenzene	<10	<10
2-Chlorotoluene	<10	<10
4-chlorotoluene	<10	<10
Benzene	<10	<10
Bromobenzene	<10	<10
Bromochloromethane	<10	<10
Bromodichloromethane	<10	<10
Bromoform	<10	<10
Carbon Tetrachloride	<10	<10
Chlorobenzene	<10	<10
Chloroform	<10	<10
cis-1,2-Dichloroethylene	<10	<10
cis-1,3-Dichloropropene	<10	<10
Dibromochloromethane	<10	<10
Ethylbenzene	<10	<10
Hexachlorobutadiene	<10	<10

Table 4J: Air Sampling Results – VOCs Cont.

Analyte	LCC Result ($\mu g/m^3$)	Topside Result ($\mu g/m^3$)
Isopropylbenzene	<10	<10
Methylene Chloride(Dichloromethane)	<10	<10
p+m-Xylene	<10	<10
Naphthalene	<10	<10
n-Butylbenzene	<10	<10
n-Propylbenzene	<10	<10
o-Xylene	<10	<10
p-isopropyltoluene	<10	<10
sec-butylbenzene	<10	<10
Styrene	<10	<10
tert-butylbenzene	<10	<10
Tetrachloroethylene	<10	<10
Toluene	<10	<10
trans-1,2-Dichloroethylene	<10	<10
trans-1,3-Dichloropropene	<10	<10
Trichloroethylene	<10	<10

Table 5J: Water Sampling Results – Nitrate/Nitrite

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Nitrate/Nitrite (Total)	5.0	5.0	10

Table 6J: Water Sampling Results – Dioxins

Analyte	Topside Result (pg/L)	LCC Result (pg/L)	Maximum Containment Level (pg/L)
2-3-7-8-Tetrachlorodibenzo-p-dioxin	<4.0	<4.1	30

Table 7J: Water Sampling Results – Diquat/Paraquat

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Diquat	<0.0004	<0.0004	0.02
Paraquat	<0.0004	<0.0004	N/A

Table 8J: Water Sampling Results – PCBs

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
PCB-1016	<0.00008	<0.00008	0.002
PCB-1221	<0.0001	<0.0001	0.002
PCB-1232	<0.0001	<0.0001	0.002
PCB-1242	<0.0001	<0.0001	0.002
PCB-1248	<0.0001	<0.0001	0.002
PCB-1254	<0.0001	<0.0001	0.002
PCB-1260	<0.0001	<0.0001	0.002
Total PCBs	<0.0001	<0.0001	0.002

Table 9J: Water Sampling Results – Pesticides/SVOCs

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
1-Methylnapthalene	< 0.000097	< 0.00011	N/A
2-Methylnapthalene	< 0.000097	< 0.00011	N/A
4,4'-DDD	< 0.000097	< 0.00011	N/A
4,4'-DDE	< 0.000097	< 0.00011	N/A
4,4'-DDT	< 0.000097	< 0.00011	N/A
Acenaphthene	< 0.000097	< 0.00011	N/A
Acenaphthylene	< 0.000097	< 0.00011	N/A
Alachlor	< 0.000097	< 0.00011	0.002
Aldrin	< 0.000097	< 0.00011	0.00001
alpha-Chlordane	< 0.000097	< 0.00011	N/A

Table 9J: Water Sampling Results – Pesticides/SVOCs Cont.

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Anthracene	< 0.000097	< 0.00011	N/A
Atrazine	< 0.000097	< 0.00011	0.003
Benzo[a]anthracene	< 0.000097	< 0.00011	0.0001
Benzo[a]pyrene	< 0.000019	< 0.000021	0.0002
Benzo[b]fluoranthene	< 0.000097	< 0.00011	0.0002
Benzo[g,h,i]perylene	< 0.000097	< 0.00011	N/A
Benzo[k]fluoranthene	< 0.000097	< 0.00011	0.0002
Bromacil	< 0.000097	< 0.00011	N/A
Butachlor	< 0.000097	< 0.00011	N/A
Butylbenzylphthalate	< 0.00097	< 0.0011	N/A
Chlorothalonil	< 0.000097	< 0.00011	N/A
Chrysene	< 0.000097	< 0.00011	0.0002
Cyanazine	< 0.000097	< 0.00011	N/A
Deisopropylatrazine	< 0.00097	< 0.0011	N/A
Desethylatrazine	< 0.00097	< 0.0011	N/A
Di(2-ethylhexyl)phthalate	< 0.00058	< 0.00064	0.006
Di(2-ethylhexyl)adipate	< 0.00058	< 0.00064	0.40
Diazinon	< 0.000097	< 0.00011	N/A
Dibenz[a,h]anthracene	< 0.000097	< 0.00011	0.0003
Dieldrin	< 0.000097	< 0.00011	N/A
Diethylphthalate	<0.00097	< 0.0011	N/A
Dimethoate	< 0.00049	< 0.00054	N/A
Dimethylphthalate	< 0.00097	< 0.0011	N/A
Di-n-butylphthalate	< 0.019	< 0.021	N/A
Di-n-octylphthalate	< 0.0019	< 0.0021	N/A
Endrin	< 0.0000097	< 0.000011	0.002
EPTC	< 0.000097	< 0.00011	N/A
Fluoranthene	< 0.000097	< 0.00011	N/A
Fluorene	< 0.000097	< 0.00011	N/A
gamma-BHC (Lindane)	< 0.000019	< 0.000021	0.0002
gamma-Chlordane	< 0.000097	< 0.00011	0.100
Heptachlor	< 0.0000097	< 0.000011	0.0004
Heptachlor Epoxide	< 0.0000097	< 0.00011	0.0002
Hexachlorobenzene	< 0.000097	< 0.00011	0.001
Hexachlorocyclopentadiene	< 0.000097	< 0.00011	0.05
Indeno[1,2,3-cd]pyrene	< 0.000097	< 0.00011	0.0004
Malathion	< 0.000097	< 0.00011	N/A

Table 9J: Water Sampling Results – Pesticides/SVOCs Cont.

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Methoxychlor	< 0.000097	< 0.00011	0.04
Metolachlor	< 0.000097	< 0.00011	N/A
Metribuzin	< 0.000097	< 0.00011	N/A
Molinate	< 0.000097	< 0.00011	N/A
Naphthalene	< 0.000097	< 0.00011	N/A
Parathion	<0.00049	< 0.00054	N/A
Phenanthrene	< 0.000097	< 0.00011	N/A
Prometryn	< 0.000097	< 0.00011	N/A
Propachlor	< 0.000097	< 0.00011	N/A
Pyrene	< 0.000097	< 0.00011	0.0002
Simazine	< 0.000068	< 0.000075	0.004
Terbacil	< 0.000097	< 0.00011	N/A
Thiobencarb	< 0.000097	< 0.00011	N/A
trans-Nonachlor	< 0.000097	< 0.00011	0.002
Trifluralin	< 0.000097	< 0.00011	N/A

Table 10J: Soil Sampling Results

Analyte	5 Ft from MAF Intake Vent (mg/kg-dry)	17 Ft from UHF Radio Antenna (mg/kg-dry)	SW of MAF, 17 Ft 5 In from Fence Post Corner (mg/kg-dry)
Methyl Parathion	Not Detected	Not Detected	Not Detected
Phorate	Not Detected	Not Detected	Not Detected
Parathion	Not Detected	Not Detected	Not Detected
Methamidophos	Not Detected	Not Detected	Not Detected
Malathion	Not Detected	Not Detected	Not Detected
Ethoprop	Not Detected	Not Detected	Not Detected
Dicrotophos	Not Detected	Not Detected	Not Detected
Diazinon	Not Detected	Not Detected	Not Detected
Chlorpyrifos	Not Detected	Not Detected	Not Detected
Terbufos	Not Detected	Not Detected	Not Detected

Table 10J: Soil Sampling Results Cont.

Analyte	NW of MAF, 14 Ft from Fence Post Corner (mg/kg-dry)	NE of MAF, 6 Ft from Fence Post Corner (mg/kg-dry)	SE of MAF, 20 Ft from Fence Post Corner (mg/kg-dry)
Methyl Parathion	Not Detected	Not Detected	Not Detected
Phorate	Not Detected	Not Detected	Not Detected
Parathion	Not Detected	Not Detected	Not Detected
Methamidophos	Not Detected	Not Detected	Not Detected
Malathion	Not Detected	Not Detected	Not Detected
Ethoprop	Not Detected	Not Detected	Not Detected
Dicrotophos	Not Detected	Not Detected	Not Detected
Diazinon	Not Detected	Not Detected	Not Detected
Chlorpyrifos	Not Detected	Not Detected	Not Detected
Terbufos	Not Detected	Not Detected	Not Detected

Table 11J: Air Direct Reading Values

Analyte	Topside Measured Value	LCC Measure Value	Recommended Range
Carbon Dioxide	697 ppm	610 ppm	1000 ppm
Relative Humidity	56.3%	38%	30% - 60%
Temperature	72.7°F	72.8°F	72°F - 80°F
Carbon Monoxide	0 ppm	1.8 ppm	25 ppm (8-hr TWA)
Ozone	0 ppm	0 ppm	0.1 ppm (8-hr TWA)

Table 12J: Water Direct Reading Values

Analyte	Topside Measured Value	LCC Measured Value	Recommended Range
pH	>8.5	>8.5	6.5 - 8.5
Free Available Chlorine	0.32	0.84	> 0 mg/L; < 4 mg/L
Total Available Chlorine	0.34	1.02	> 0 mg/L; < 4 mg/L

Appendix 11: MAF KILO (K-01) Results, Sampled on 14 July 2023

Table 1K: PCB Swipe Sampling

Location	Analyte	Result (µg/100 cm^2)	Standard (40 CFR Part 761) (µg/100 cm^2)
Digital Data Group – Surface	Total PCBs	Not Detected	10
Digital Data Group – Underside	Total PCBs	Not Detected	10
DC Power Supply – Under Plastic Cover	Total PCBs	Not Detected	10
AC Power Supply – Under Plastic Cover	Total PCBs	Not Detected	10
Battery Charger Access	Total PCBs	Not Detected	10
Control Power Supply – Right Handle	Total PCBs	Not Detected	10
Control Power Supply – Underside	Total PCBs	Not Detected	10
Left Console Right Screen	Total PCBs	Not Detected	10
Left Console Keyboard	Total PCBs	Not Detected	10
Right Console Right Screen	Total PCBs	Not Detected	10
Right Console Keyboard	Total PCBs	Not Detected	10
Fridge Bottom Handle	Total PCBs	Not Detected	10
Wing 5 LCPA – Surface	Total PCBs	Not Detected	10
Wing 5 LCPA – Underside	Total PCBs	Not Detected	10
LCC Bathroom Handle	Total PCBs	Not Detected	10
Filtron R.F. Interference Filter – Surface	Total PCBs	Not Detected	10
MPP, Automatic Switching Unit – Underside	Total PCBs	Not Detected	10
Doorknob from Elevator to SFC Room	Total PCBs	Not Detected	10
SFC Desk	Total PCBs	Not Detected	10
Doorknob from SFC Room to Common Area	Total PCBs	Not Detected	10

Table 2K: Air Sampling Results – PCBs

Analyte	LCC Result (mg/m^3)	Topside Result (mg/m^3)
Aroclor 1016	<0.0021	<0.0021
Aroclor 1221	<0.0021	<0.0021
Aroclor 1232	<0.0021	<0.0021
Aroclor 1242	<0.0021	<0.0021
Aroclor 1248	<0.0021	<0.0021
Aroclor 1254	<0.0021	<0.0021
Aroclor 1260	<0.0021	<0.0021

Table 3K: Air Sampling Results – Organophosphates

Analyte	LCC (8hr) Result (mg/m^3)	Topside (8hr) Result (mg/m^3)	LCC (2hr) Result (mg/m^3)	Topside (2hr) Result (mg/m^3)
Chloropyrifos (Dursban)	<0.0021	<0.0021	<0.0083	<0.0083
Diazinon	<0.0021	<0.0021	<0.0083	<0.0083
Dicrotophos	<0.0021	<0.0021	<0.0083	<0.0083
Ethoprophos (Mocap)	<0.0021	<0.0021	<0.0083	<0.0083
Malathion	<0.0021	<0.0021	<0.0083	<0.0083
Methamidophos	<0.0042	<0.0042	<0.017	<0.017
Methyl Parathion	<0.0021	<0.0021	<0.0083	<0.0083
Parathion (Parathion Ethyl)	<0.0021	<0.0021	<0.0083	<0.0083
Phorate	<0.0021	<0.0021	<0.0083	<0.0083
Terbufos	<0.0021	<0.0021	<0.0083	<0.0083

Table 4K: Air Sampling Results – VOCs

Analyte	LCC Result ($\mu g/m^3$)	Topside Result ($\mu g/m^3$)
1,1,1,2-Tetrachloroethane	<10	<10
1,1,1-Trichloroethane	<10	<10
1,1,2,2-Tetrachloroethane	<10	<10
1,1,2-Trichloroethane	<10	<10
1,1-Dichloroethane	<10	<10
1,1-Dichloroethylene	<10	<10
1,1-Dichloropropylene	<10	<10
1,2,3-Trichlorobenzene	<10	<10
1,2,3-Trichloropropane	<10	<10
1,2,4-Trichlorobenzene	<10	<10
1,2,4-Trimethylbenzene	<10	<10
1,2-Dibromo-3-chloropropane (DBCP)	<10	<10
Ethylene Dibromide	<10	<10
1,2-Dichlorobenzene	<10	<10
1,2-Dichloroethane	<10	<10
1,2-Dichloropropane	<10	<10
1,3,5-Trimethylbenzene	<10	<10
1,3-Dichlorobenzene	<10	<10
1,3-Dichloropropane	<10	<10
1,4-Dichlorobenzene	<10	<10
2-Chlorotoluene	<10	<10
4-chlorotoluene	<10	<10
Benzene	17	<10
Bromobenzene	<10	<10
Bromochloromethane	<10	<10
Bromodichloromethane	<10	<10
Bromoform	<10	<10
Carbon Tetrachloride	<10	<10
Chlorobenzene	<10	<10
Chloroform	<10	<10
cis-1,2-Dichloroethylene	<10	<10
cis-1,3-Dichloropropene	<10	<10
Dibromochloromethane	<10	<10
Ethylbenzene	<10	<10
Hexachlorobutadiene	<10	<10

Table 4K: Air Sampling Results – VOCs Cont.

Analyte	LCC Result ($\mu g/m^3$)	Topside Result ($\mu g/m^3$)
Isopropylbenzene	<10	<10
Methylene Chloride(Dichloromethane)	22	14
p+m-Xylene	<10	<10
Naphthalene	<10	<10
n-Butylbenzene	<10	<10
n-Propylbenzene	<10	<10
o-Xylene	<10	<10
p-isopropyltoluene	<10	<10
sec-butylbenzene	<10	<10
Styrene	<10	<10
tert-butylbenzene	<10	<10
Tetrachloroethylene	<10	<10
Toluene	<10	35
trans-1,2-Dichloroethylene	<10	<10
trans-1,3-Dichloropropene	<10	<10
Trichloroethylene	<10	<10

Table 5K: Water Sampling Results – Nitrate/Nitrite

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Nitrate/Nitrite (Total)	0.33	0.33	10

Table 6K: Water Sampling Results – Dioxins

Analyte	Topside Result (pg/L)	LCC Result (pg/L)	Maximum Containment Level (pg/L)
2-3-7-8-Tetrachlorodibenzo-p-dioxin	<4.0	<4.3	30

Table 7K: Water Sampling Results – Diquat/Paraquat

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Diquat	<0.0004	<0.0004	0.02
Paraquat	<0.0004	<0.0004	N/A

Table 8K: Water Sampling Results – PCBs

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
PCB-1016	<0.00008	<0.00008	0.002
PCB-1221	<0.0001	<0.0001	0.002
PCB-1232	<0.0001	<0.0001	0.002
PCB-1242	<0.0001	<0.0001	0.002
PCB-1248	<0.0001	<0.0001	0.002
PCB-1254	<0.0001	<0.0001	0.002
PCB-1260	<0.0001	<0.0001	0.002
Total PCBs	<0.0001	<0.0001	0.002

Table 9K: Water Sampling Results – Pesticides/SVOCs

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
1-Methylnapthalene	<0.00010	<0.00010	N/A
2-Methylnapthalene	<0.00010	<0.00010	N/A
4,4'-DDD	<0.00010	<0.00010	N/A
4,4'-DDE	<0.00010	<0.00010	N/A
4,4'-DDT	<0.00010	<0.00010	N/A
Acenaphthene	<0.00010	<0.00010	N/A
Acenaphthylene	<0.00010	<0.00010	N/A
Alachlor	<0.00010	<0.00010	0.002
Aldrin	<0.00010	<0.00010	0.00001
alpha-Chlordane	<0.00010	<0.00010	N/A

Table 9K: Water Sampling Results – Pesticides/SVOCs Cont.

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Anthracene	<0.00010	<0.00010	N/A
Atrazine	<0.00010	<0.00010	0.003
Benzo[a]anthracene	<0.00010	<0.00010	0.0001
Benzo[a]pyrene	<0.000020	<0.000020	0.0002
Benzo[b]fluoranthene	<0.00010	<0.00010	0.0002
Benzo[g,h,i]perylene	<0.00010	<0.00010	N/A
Benzo[k]fluoranthene	<0.00010	<0.00010	0.0002
Bromacil	<0.00010	<0.00010	N/A
Butachlor	<0.00010	<0.00010	N/A
Butylbenzylphthalate	<0.0010	<0.0010	N/A
Chlorothalonil	<0.00010	<0.00010	N/A
Chrysene	<0.00010	<0.00010	0.0002
Cyanazine	<0.00010	<0.00010	N/A
Deisopropylatrazine	<0.0010	<0.0010	N/A
Desethylatrazine	<0.0010	<0.0010	N/A
Di(2-ethylhexyl)phthalate	<0.00060	<0.00060	0.006
Di(2-ethylhexyl)adipate	<0.00060	<0.00060	0.40
Diazinon	<0.00010	<0.00010	N/A
Dibenz[a,h]anthracene	<0.00010	<0.00010	0.0003
Dieldrin	<0.00010	<0.00010	N/A
Diethylphthalate	<0.0010	<0.0010	N/A
Dimethoate	<0.00050	<0.00050	N/A
Dimethylphthalate	<0.0010	<0.0010	N/A
Di-n-butylphthalate	<0.0020	<0.0020	N/A
Di-n-octylphthalate	<0.0020	<0.0020	N/A
Endrin	<0.000010	<0.000010	0.002
EPTC	<0.00010	<0.00010	N/A
Fluoranthene	<0.00010	<0.00010	N/A
Fluorene	<0.00010	<0.00010	N/A
gamma-BHC (Lindane)	<0.000020	<0.000020	0.0002
gamma-Chlordane	<0.00010	<0.00010	0.100
Heptachlor	<0.000010	<0.000010	0.0004
Heptachlor Epoxide	<0.000010	<0.000010	0.0002
Hexachlorobenzene	<0.00010	<0.00010	0.001
Hexachlorocyclopentadiene	<0.00010	<0.00010	0.05
Indeno[1,2,3-cd]pyrene	<0.00010	<0.00010	0.0004
Malathion	<0.00010	<0.00010	N/A

Table 9K: Water Sampling Results – Pesticides/SVOCs Cont.

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Methoxychlor	<0.00010	<0.00010	0.04
Metolachlor	<0.00010	<0.00010	N/A
Metribuzin	<0.00010	<0.00010	N/A
Molinate	<0.00010	<0.00010	N/A
Naphthalene	<0.00010	<0.00010	N/A
Parathion	<0.00050	<0.00050	N/A
Phenanthrene	<0.00010	<0.00010	N/A
Prometryn	<0.00010	<0.00010	N/A
Propachlor	<0.00010	<0.00010	N/A
Pyrene	<0.00010	<0.00010	0.0002
Simazine	<0.000070	<0.000070	0.004
Terbacil	<0.00010	<0.00010	N/A
Thiobencarb	<0.00010	<0.00010	N/A
trans-Nonachlor	<0.00010	<0.00010	0.002
Trifluralin	<0.00010	<0.00010	N/A

Table 10K: Soil Sampling Results

Analyte	N side of MAF Inside Fence Near Air Intake Vent (mg/kg-dry)	SE side of MAF Inside Gate Near Basketball Hoop (mg/kg-dry)	10 ft from NE Corner of Fence (mg/kg-dry)
Methyl Parathion	Not Detected	Not Detected	Not Detected
Phorate	Not Detected	Not Detected	Not Detected
Parathion	Not Detected	Not Detected	Not Detected
Methamidophos	Not Detected	Not Detected	Not Detected
Malathion	Not Detected	Not Detected	Not Detected
Ethoprop	Not Detected	Not Detected	Not Detected
Dicrotophos	Not Detected	Not Detected	Not Detected
Diazinon	Not Detected	Not Detected	Not Detected
Chlorpyrifos	Not Detected	Not Detected	Not Detected
Terbufos	Not Detected	Not Detected	Not Detected

Table 10K: Soil Sampling Results Cont.

Analyte	10 ft from NW Corner of Fence (mg/kg-dry)	20 ft from SW Corner of Fence (mg/kg-dry)	3 ft from SE Corner of Fence (mg/kg-dry)
Methyl Parathion	Not Detected	Not Detected	Not Detected
Phorate	Not Detected	Not Detected	Not Detected
Parathion	Not Detected	Not Detected	Not Detected
Methamidophos	Not Detected	Not Detected	Not Detected
Malathion	Not Detected	Not Detected	Not Detected
Ethoprop	Not Detected	Not Detected	Not Detected
Dicrotophos	Not Detected	Not Detected	Not Detected
Diazinon	Not Detected	Not Detected	Not Detected
Chlorpyrifos	Not Detected	Not Detected	Not Detected
Terbufos	Not Detected	Not Detected	Not Detected

Table 11K: Air Direct Reading Values

Analyte	Topside Measured Value	LCC Measure Value	Recommended Range
Carbon Dioxide	448 ppm	750 ppm	1000 ppm
Relative Humidity	63.4%	60%	30% - 60%
Temperature	68.1°F	70.9°F	72°F - 80°F
Carbon Monoxide	0 ppm	0.1 ppm	25 ppm (8-hr TWA)
Ozone	0 ppm	0 ppm	0.1 ppm (8-hr TWA)

Table 12K: Water Direct Reading Values

Analyte	Topside Measured Value	LCC Measured Value	Recommended Range
pH	>8.5	7.8	6.5 - 8.5
Free Available Chlorine	1.3	0.81	> 0 mg/L; < 4 mg/L
Total Available Chlorine	1.4	0.8	> 0 mg/L; < 4 mg/L

Appendix 12: MAF LIMA (L-01) Results, Sampled on 13 July 2023

Table 1L: PCB Swipe Sampling

Location	Analyte	Result (µg/100 cm^2)	Standard (40 CFR Part 761) (µg/100 cm^2)
Digital Data Group – Surface	Total PCBs	Not Detected	10
Digital Data Group – Underside	Total PCBs	Not Detected	10
DC Power Supply – Under Plastic Cover	Aroclor 1254	2.93	10
	Total PCBs	2.93	10
AC Power Supply – Under Plastic Cover	Total PCBs	Not Detected	10
Battery Charger Access	Total PCBs	Not Detected	10
Control Power Supply – Right Handle	Aroclor 1254	1.22	10
	Total PCBs	1.22	10
Control Power Supply – Underside	Aroclor 1254	1.08	10
	Total PCBs	1.08	10
Left Console Right Screen	Total PCBs	Not Detected	10
Left Console Keyboard	Total PCBs	Not Detected	10
Right Console Right Screen	Total PCBs	1.04	10
	Total PCBs	1.04	10
Right Console Keyboard	Total PCBs	Not Detected	10
Fridge Bottom Handle	Total PCBs	Not Detected	10
Wing 5 LCPA – Surface	Total PCBs	Not Detected	10
Wing 5 LCPA – Underside	Total PCBs	Not Detected	10
LCC Bathroom Handle	Total PCBs	Not Detected	10
Filtron R.F. Interference Filter – Surface	Total PCBs	Not Detected	10
MPP, Automatic Switching Unit – Underside	Total PCBs	Not Detected	10
Doorknob from Elevator to SFC Room	Total PCBs	Not Detected	10
SFC Desk	Total PCBs	Not Detected	10
Doorknob from SFC Room to Common Area	Total PCBs	Not Detected	10

Table 2L: Air Sampling Results – PCBs

Analyte	LCC Result (mg/m^3)	Topside Result (mg/m^3)
Aroclor 1016	<0.0010	<0.0010
Aroclor 1221	<0.0010	<0.0010
Aroclor 1232	<0.0010	<0.0010
Aroclor 1242	<0.0010	<0.0010
Aroclor 1248	<0.0010	<0.0021
Aroclor 1254	<0.0010	<0.0021
Aroclor 1260	<0.0010	<0.0021

Table 3L: Air Sampling Results – Organophosphates

Analyte	LCC (8hr) Result (mg/m^3)	Topside (8hr) Result (mg/m^3)	LCC (2hr) Result (mg/m^3)	Topside (2hr) Result (mg/m^3)
Chloropyrifos (Dursban)	<0.0026	<0.0025	<0.0081	<0.0083
Diazinon	<0.0026	<0.0025	<0.0081	<0.0083
Dicrotophos	<0.0026	<0.0025	<0.0081	<0.0083
Ethoprophos (Mocap)	<0.0026	<0.0025	<0.0081	<0.0083
Malathion	<0.0026	<0.0025	<0.0081	<0.0083
Methamidophos	<0.0052	<0.0051	<0.016	<0.017
Methyl Parathion	<0.0026	<0.0025	<0.0081	<0.0083
Parathion (Parathion Ethyl)	<0.0026	<0.0025	<0.0081	<0.0083
Phorate	<0.0026	<0.0025	<0.0081	<0.0083
Terbufos	<0.0026	<0.0025	<0.0081	<0.0083

Table 4L: Air Sampling Results – VOCs

Analyte	LCC Result (µg/m^3)	Topside Result (µg/m^3)
1,1,1,2-Tetrachloroethane	<10	<10
1,1,1-Trichloroethane	<10	<10
1,1,2,2-Tetrachloroethane	<10	<10
1,1,2-Trichloroethane	<10	<10
1,1-Dichloroethane	<10	<10
1,1-Dichloroethylene	<10	<10
1,1-Dichloropropylene	<10	<10
1,2,3-Trichlorobenzene	<10	<10
1,2,3-Trichloropropane	<10	<10
1,2,4-Trichlorobenzene	<10	<10
1,2,4-Trimethylbenzene	<10	<10
1,2-Dibromo-3-chloropropane (DBCP)	<10	<10
Ethylene Dibromide	<10	<10
1,2-Dichlorobenzene	<10	<10
1,2-Dichloroethane	<10	15
1,2-Dichloropropane	<10	<10
1,3,5-Trimethylbenzene	<10	<10
1,3-Dichlorobenzene	<10	<10
1,3-Dichloropropane	<10	<10
1,4-Dichlorobenzene	<10	<10
2-Chlorotoluene	<10	<10
4-chlorotoluene	<10	<10
Benzene	<10	180
Bromobenzene	<10	<10
Bromochloromethane	<10	<10
Bromodichloromethane	<10	<10
Bromoform	<10	<10
Carbon Tetrachloride	<10	<10
Chlorobenzene	<10	<10
Chloroform	<10	<10
cis-1,2-Dichloroethylene	<10	<10
cis-1,3-Dichloropropene	<10	<10
Dibromochloromethane	<10	<10
Ethylbenzene	<10	<10
Hexachlorobutadiene	<10	<10

Table 4L: Air Sampling Results – VOCs Cont.

Analyte	LCC Result ($\mu g/m^3$)	Topside Result ($\mu g/m^3$)
Isopropylbenzene	<10	<10
Methylene Chloride(Dichloromethane)	15	14
p+m-Xylene	<10	<10
Naphthalene	<10	<10
n-Butylbenzene	<10	<10
n-Propylbenzene	<10	<10
o-Xylene	<10	<10
p-isopropyltoluene	<10	<10
sec-butylbenzene	<10	<10
Styrene	<10	<10
tert-butylbenzene	<10	<10
Tetrachloroethylene	<10	<10
Toluene	<10	<10
trans-1,2-Dichloroethylene	<10	<10
trans-1,3-Dichloropropene	<10	<10
Trichloroethylene	<10	<10

Table 5L: Water Sampling Results – Nitrate/Nitrite

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Nitrate/Nitrite (Total)	1.1	1.3	10

Table 6L: Water Sampling Results – Dioxins

Analyte	Topside Result (pg/L)	LCC Result (pg/L)	Maximum Containment Level (pg/L)
2-3-7-8-Tetrachlorodibenzo-p-dioxin	<4.3	<4.5	30

Table 7L: Water Sampling Results – Diquat/Paraquat

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Diquat	<0.0004	<0.0004	0.02
Paraquat	<0.0004	<0.0004	N/A

Table 8L: Water Sampling Results – PCBs

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
PCB-1016	<0.00008	<0.00008	0.002
PCB-1221	<0.0001	<0.0001	0.002
PCB-1232	<0.0001	<0.0001	0.002
PCB-1242	<0.0001	<0.0001	0.002
PCB-1248	<0.0001	<0.0001	0.002
PCB-1254	<0.0001	<0.0001	0.002
PCB-1260	<0.0001	<0.0001	0.002
Total PCBs	<0.0001	<0.0001	0.002

Table 9L: Water Sampling Results – Pesticides/SVOCs

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
1-Methylnapthalene	<0.00010	< 0.00011	N/A
2-Methylnapthalene	<0.00010	< 0.00011	N/A
4,4'-DDD	<0.00010	< 0.00011	N/A
4,4'-DDE	<0.00010	< 0.00011	N/A
4,4'-DDT	<0.00010	< 0.00011	N/A
Acenaphthene	<0.00010	< 0.00011	N/A
Acenaphthylene	<0.00010	< 0.00011	N/A
Alachlor	<0.00010	< 0.00011	0.002
Aldrin	<0.00010	< 0.00011	0.00001
alpha-Chlordane	<0.00010	< 0.00011	N/A

Table 9L: Water Sampling Results – Pesticides/SVOCs Cont.

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Anthracene	<0.00010	< 0.00011	N/A
Atrazine	<0.00010	< 0.00011	0.003
Benzo[a]anthracene	<0.00010	< 0.00011	0.0001
Benzo[a]pyrene	<0.000021	< 0.000022	0.0002
Benzo[b]fluoranthene	<0.00010	< 0.00011	0.0002
Benzo[g,h,i]perylene	<0.00010	< 0.00011	N/A
Benzo[k]fluoranthene	<0.00010	< 0.00011	0.0002
Bromacil	<0.00010	< 0.00011	N/A
Butachlor	<0.00010	< 0.00011	N/A
Butylbenzylphthalate	<0.0010	< 0.0011	N/A
Chlorothalonil	<0.00010	< 0.00011	N/A
Chrysene	<0.00010	< 0.00011	0.0002
Cyanazine	<0.00010	< 0.00011	N/A
Deisopropylatrazine	<0.0010	< 0.0011	N/A
Desethylatrazine	<0.0010	< 0.0011	N/A
Di(2-ethylhexyl)phthalate	<0.00062	< 0.00067	0.006
Di(2-ethylhexyl)adipate	<0.00062	< 0.00067	0.40
Diazinon	<0.00010	< 0.00011	N/A
Dibenz[a,h]anthracene	<0.00010	< 0.00011	0.0003
Dieldrin	<0.00010	< 0.00011	N/A
Diethylphthalate	<0.0010	< 0.0011	N/A
Dimethoate	<0.00051	< 0.00056	N/A
Dimethylphthalate	<0.0010	< 0.0011	N/A
Di-n-butylphthalate	N/A	0.0088	N/A
Di-n-octylphthalate	<0.0021	< 0.0022	N/A
Endrin	<0.000010	< 0.000011	0.002
EPTC	<0.00010	< 0.00011	N/A
Fluoranthene	<0.00010	< 0.00011	N/A
Fluorene	<0.00010	< 0.00011	N/A
gamma-BHC (Lindane)	<0.000021	< 0.000022	0.0002
gamma-Chlordane	<0.00010	< 0.00011	0.100
Heptachlor	<0.000010	< 0.000011	0.0004
Heptachlor Epoxide	<0.000010	< 0.00011	0.0002
Hexachlorobenzene	<0.00010	< 0.00011	0.001
Hexachlorocyclopentadiene	<0.00010	< 0.00011	0.05
Indeno[1,2,3-cd]pyrene	<0.00010	< 0.00011	0.0004
Malathion	<0.00010	< 0.00011	N/A

Table 9L: Water Sampling Results – Pesticides/SVOCs Cont.

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Methoxychlor	<0.00010	< 0.00011	0.04
Metolachlor	<0.00010	< 0.00011	N/A
Metribuzin	<0.00010	< 0.00011	N/A
Molinate	<0.00010	< 0.00011	N/A
Naphthalene	<0.00010	< 0.00011	N/A
Parathion	<0.00051	< 0.00056	N/A
Phenanthrene	<0.00010	< 0.00011	N/A
Prometryn	<0.00010	< 0.00011	N/A
Propachlor	<0.00010	< 0.00011	N/A
Pyrene	<0.00010	< 0.00011	0.0002
Simazine	<0.000072	< 0.000078	0.004
Terbacil	<0.00010	< 0.00011	N/A
Thiobencarb	<0.00010	< 0.00011	N/A
trans-Nonachlor	<0.00010	< 0.00011	0.002
Trifluralin	<0.00010	< 0.00011	N/A

Table 10L: Soil Sampling Results

Analyte	Outside of Air Intake Vent, Back Side of MAF (mg/kg-dry)	SW Corner Outside Fence (mg/kg-dry)	S Corner Outside Fence (mg/kg-dry)
Methyl Parathion	Not Detected	Not Detected	Not Detected
Phorate	Not Detected	Not Detected	Not Detected
Parathion	Not Detected	Not Detected	Not Detected
Methamidophos	Not Detected	Not Detected	Not Detected
Malathion	Not Detected	Not Detected	Not Detected
Ethoprop	Not Detected	Not Detected	Not Detected
Dicrotophos	Not Detected	Not Detected	Not Detected
Diazinon	Not Detected	Not Detected	Not Detected
Chlorpyrifos	Not Detected	Not Detected	Not Detected
Terbufos	Not Detected	Not Detected	Not Detected

Table 10L: Soil Sampling Results Cont.

Analyte	SE Corner Outside Fence (mg/kg-dry)	N Corner Outside Fence (mg/kg-dry)	SW Corner Inside Fence Above Capsule (mg/kg-dry)
Methyl Parathion	Not Detected	Not Detected	Not Detected
Phorate	Not Detected	Not Detected	Not Detected
Parathion	Not Detected	Not Detected	Not Detected
Methamidophos	Not Detected	Not Detected	Not Detected
Malathion	Not Detected	Not Detected	Not Detected
Ethoprop	Not Detected	Not Detected	Not Detected
Dicrotophos	Not Detected	Not Detected	Not Detected
Diazinon	Not Detected	Not Detected	Not Detected
Chlorpyrifos	Not Detected	Not Detected	Not Detected
Terbufos	Not Detected	Not Detected	Not Detected

Table 11L: Air Direct Reading Values

Analyte	Topside Measured Value	LCC Measure Value	Recommended Range
Carbon Dioxide	466 ppm	714 ppm	1000 ppm
Relative Humidity	55.6%	39.1%	30% - 60%
Temperature	69.5°F	72.2°F	72°F - 80°F
Carbon Monoxide	0.1 ppm	2.1 ppm	25 ppm (8-hr TWA)
Ozone	0	0	0.1 ppm (8-hr TWA)

Table 12L: Water Direct Reading Values

Analyte	Topside Measured Value	LCC Measured Value	Recommended Range
pH	>8.5	>8.5	6.5 - 8.5
Free Available Chlorine	0.09	0.17	> 0 mg/L; < 4 mg/L
Total Available Chlorine	0.09	0.26	> 0 mg/L; < 4 mg/L

Appendix 13: MAF MIKE (M-01) Results, Sampled on 12 July 2023

Table 1M: PCB Swipe Sampling

Location	Analyte	Result (µg/100 cm^2)	Standard (40 CFR Part 761) (µg/100 cm^2)
Digital Data Group – Surface	Total PCBs	Not Detected	10
Digital Data Group – Underside	Total PCBs	1.24	10
Battery Access Charger – Surface (PCB sticker)	Total PCBs	Not Detected	10
Battery Access Charger – Ground Level (PCB sticker)	Total PCBs	Not Detected	10
Left Console Keyboard	Total PCBs	Not Detected	10
Left Console Display Screen	Total PCBs	Not Detected	10
Control Power Supply (SN: 0000042) – Right Handle	Total PCBs	Not Detected	10
Control Power Supply (SN: 0000042) – Bottom seam	Total PCBs	Not Detected	10
Fridge Bottom Handle	Total PCBs	Not Detected	10
Right Console Keyboard	Total PCBs	1.34	10
Right Console Display Screen	Total PCBs	Not Detected	10
Wing 5 LCPA (SN: 12-26601/5-010) – Surface	Total PCBs	Not Detected	10
Wing 5 LCPA (SN: 12-26601/5-010) – Underside	Total PCBs	Not Detected	10
LCC Bathroom Handle	Total PCBs	Not Detected	10
LCC Entry Box in Ceiling (PCB Sticker)	Aroclor 1254	1.38	10
	Total PCBs	1.38	10
Filtron R.F. Interference Filter – Surface	Total PCBs	Not Detected	10
MPP, Automatic Switching Unit – Underside	Total PCBs	Not Detected	10
SFC Comm Desk	Total PCBs	Not Detected	10
Doorknob from SFC Room to Elevator	Total PCBs	Not Detected	10
Common Area Dining Table	Total PCBs	Not Detected	10

Table 2M: Air Sampling Results – PCBs

Analyte	LCC Result (mg/m^3)	Topside Result (mg/m^3)
Aroclor 1016	<0.0034	<0.0021
Aroclor 1221	<0.0034	<0.0021
Aroclor 1232	<0.0034	<0.0021
Aroclor 1242	<0.0034	<0.0021
Aroclor 1248	<0.0034	<0.0021
Aroclor 1254	<0.0034	<0.0021
Aroclor 1260	<0.0034	<0.0021

Table 3M: Air Sampling Results – Organophosphates

Analyte	LCC (8hr) Result (mg/m^3)	Topside (8hr) Result (mg/m^3)	LCC (2hr) Result (mg/m^3)	Topside (2hr) Result (mg/m^3)
Chloropyrifos (Dursban)	<0.0021	<0.0021	<0.0083	<0.0083
Diazinon	<0.0021	<0.0021	<0.0083	<0.0083
Dicrotophos	<0.0021	<0.0021	<0.0083	<0.0083
Ethoprophos (Mocap)	<0.0021	<0.0021	<0.0083	<0.0083
Malathion	<0.0021	<0.0021	<0.0083	<0.0083
Methamidophos	<0.0042	<0.0042	<0.017	<0.017
Methyl Parathion	<0.0021	<0.0021	<0.0083	<0.0083
Parathion (Parathion Ethyl)	<0.0021	<0.0021	<0.0083	<0.0083
Phorate	<0.0021	<0.0021	<0.0083	<0.0083
Terbufos	<0.0021	<0.0021	<0.0083	<0.0083

Table 4M: Air Sampling Results – VOCs

Analyte	LCC Result (µg/m^3)	Topside Result (µg/m^3)
1,1,1,2-Tetrachloroethane	<10	<10
1,1,1-Trichloroethane	<10	<10
1,1,2,2-Tetrachloroethane	<10	<10
1,1,2-Trichloroethane	<10	<10
1,1-Dichloroethane	<10	<10
1,1-Dichloroethylene	<10	<10
1,1-Dichloropropylene	<10	<10
1,2,3-Trichlorobenzene	<10	<10
1,2,3-Trichloropropane	<10	<10
1,2,4-Trichlorobenzene	<10	<10
1,2,4-Trimethylbenzene	<10	<10
1,2-Dibromo-3-chloropropane (DBCP)	<10	<10
Ethylene Dibromide	<10	<10
1,2-Dichlorobenzene	<10	<10
1,2-Dichloroethane	<10	<10
1,2-Dichloropropane	<10	<10
1,3,5-Trimethylbenzene	<10	<10
1,3-Dichlorobenzene	<10	<10
1,3-Dichloropropane	<10	<10
1,4-Dichlorobenzene	<10	<10
2-Chlorotoluene	<10	<10
4-chlorotoluene	<10	<10
Benzene	<10	<10
Bromobenzene	<10	<10
Bromochloromethane	<10	<10
Bromodichloromethane	<10	<10
Bromoform	<10	<10
Carbon Tetrachloride	<10	<10
Chlorobenzene	<10	<10
Chloroform	<10	<10
cis-1,2-Dichloroethylene	<10	<10
cis-1,3-Dichloropropene	<10	<10
Dibromochloromethane	<10	<10
Ethylbenzene	<10	<10
Hexachlorobutadiene	<10	<10

Table 4M: Air Sampling Results – VOCs Cont.

Analyte	LCC Result ($\mu g/m^3$)	Topside Result ($\mu g/m^3$)
Isopropylbenzene	<10	<10
Methylene Chloride(Dichloromethane)	<10	<10
p+m-Xylene	<10	<10
Naphthalene	<10	<10
n-Butylbenzene	<10	<10
n-Propylbenzene	<10	<10
o-Xylene	<10	<10
p-isopropyltoluene	<10	<10
sec-butylbenzene	<10	<10
Styrene	<10	<10
tert-butylbenzene	<10	<10
Tetrachloroethylene	<10	<10
Toluene	<10	<10
trans-1,2-Dichloroethylene	<10	<10
trans-1,3-Dichloropropene	<10	<10
Trichloroethylene	<10	<10

Table 5M: Water Sampling Results – Nitrate/Nitrite

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Nitrate/Nitrite (Total)	<0.10	<0.10	10

Table 6M: Water Sampling Results – Dioxins

Analyte	Topside Result (pg/L)	LCC Result (pg/L)	Maximum Containment Level (pg/L)
2-3-7-8-Tetrachlorodibenzo-p-dioxin	<4.3	<4.4	30

Table 7M: Water Sampling Results – Diquat/Paraquat

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Diquat	<0.0004	<0.0004	0.02
Paraquat	<0.0004	<0.0004	N/A

Table 8M: Water Sampling Results – PCBs

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
PCB-1016	<0.00008	<0.00008	0.002
PCB-1221	<0.0001	<0.0001	0.002
PCB-1232	<0.0001	<0.0001	0.002
PCB-1242	<0.0001	<0.0001	0.002
PCB-1248	<0.0001	<0.0001	0.002
PCB-1254	<0.0001	<0.0001	0.002
PCB-1260	<0.0001	<0.0001	0.002
Total PCBs	<0.0001	<0.0001	0.002

Table 9M: Water Sampling Results – Pesticides/SVOCs

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
1-Methylnapthalene	<0.00010	<0.00010	N/A
2-Methylnapthalene	<0.00010	<0.00010	N/A
4,4'-DDD	<0.00010	<0.00010	N/A
4,4'-DDE	<0.00010	<0.00010	N/A
4,4'-DDT	<0.00010	<0.00010	N/A
Acenaphthene	<0.00010	<0.00010	N/A
Acenaphthylene	<0.00010	<0.00010	N/A
Alachlor	<0.00010	<0.00010	0.002
Aldrin	<0.00010	<0.00010	0.00001
Anthracene	<0.00010	<0.00010	N/A

Table 9M: Water Sampling Results – Pesticides/SVOCs Cont.

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Atrazine	<0.00010	<0.00010	0.003
Benthiocarb	<0.00010	<0.00010	
Benzo[a]anthracene	<0.00010	<0.00010	0.0001
Benzo[a]pyrene	<0.000021	<0.000020	0.0002
Benzo[b]fluoranthene	<0.00010	<0.00010	0.0002
Benzo[g,h,i]perylene	<0.00010	<0.00010	N/A
Benzo[k]fluoranthene	<0.00010	<0.00010	0.0002
Bromacil	<0.00010	<0.00010	N/A
Butachlor	<0.00010	<0.00010	N/A
Butylbenzylphthalate	<0.0010	<0.0010	N/A
Chlorothalonil	<0.00010	<0.00010	N/A
Chrysene	<0.00010	<0.00010	0.0002
Cyanazine	<0.00010	<0.00010	N/A
Deisopropylatrazine	<0.0010	<0.0010	N/A
Desethylatrazine	<0.0010	<0.0010	N/A
Di(2-ethylhexyl)phthalate	<0.00062	<0.00061	0.006
Di(2-ethylhexyl)adipate	<0.00062	<0.00061	0.40
Diazinon	<0.00010	<0.00010	N/A
Dibenz[a,h]anthracene	<0.00010	<0.00010	0.0003
Dieldrin	<0.00010	<0.00010	N/A
Diethylphthalate	<0.0010	<0.0010	N/A
Dimethoate	<0.00052	<0.00051	N/A
Dimethylphthalate	<0.0010	<0.0010	N/A
Di-n-butylphthalate	<0.0021	<0.0020	N/A
Di-n-octylphthalate	<0.0021	<0.0020	N/A
Endrin	<0.000010	<0.000010	0.002
EPTC	<0.00010	<0.00010	N/A
Fluoranthene	<0.00010	<0.00010	N/A
Fluorene	<0.00010	<0.00010	N/A
gamma-BHC (Lindane)	<0.000021	<0.000020	N/A
gamma-Chlordane	<0.00010	<0.00010	0.0002
Heptachlor	<0.000041	<0.000041	0.0004
Heptachlor Epoxide	<0.000021	<0.000020	0.0002
Hexachlorobenzene	<0.00010	<0.00010	0.001
Hexachlorocyclopentadiene	<0.00010	<0.00010	0.05
Indeno[1,2,3-cd]pyrene	<0.00010	<0.00010	0.0004
Malathion	<0.00010	<0.00010	N/A

Table 9M: Water Sampling Results – Pesticides/SVOCs Cont.

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Methoxychlor	<0.00010	<0.00010	0.04
Metolachlor	<0.00010	<0.00010	N/A
Metribuzin	<0.00010	<0.00010	N/A
Molinate	<0.00010	<0.00010	N/A
Naphthalene	<0.00010	<0.00010	N/A
Parathion	<0.00052	<0.00051	
Phenanthrene	<0.00010	<0.00010	N/A
Prometryn	<0.00010	<0.00010	N/A
Propachlor	<0.00010	<0.00010	N/A
Pyrene	<0.00010	<0.00010	0.0002
Simazine	<0.000073	<0.000071	0.004
Terbacil	<0.00010	<0.00010	N/A
Thiobencarb	<0.00010	<0.00010	N/A
trans-Nonachlor	<0.00010	<0.00010	0.002
Trifluralin	<0.00010	<0.00010	N/A

Table 10M: Soil Sampling Results

Analyte	SW Outside Corner of MAF (mg/kg-dry)	NW Outside Corner of MAF (mg/kg-dry)	NE Outside Corner of MAF (mg/kg-dry)
Methyl Parathion	Not Detected	Not Detected	Not Detected
Phorate	Not Detected	Not Detected	Not Detected
Parathion	Not Detected	Not Detected	Not Detected
Methamidophos	Not Detected	Not Detected	Not Detected
Malathion	Not Detected	Not Detected	Not Detected
Ethoprop	Not Detected	Not Detected	Not Detected
Dicrotophos	Not Detected	Not Detected	Not Detected
Diazinon	Not Detected	Not Detected	Not Detected
Chlorpyrifos	Not Detected	Not Detected	Not Detected
Terbufos	Not Detected	Not Detected	Not Detected

Table 10M: Soil Sampling Results Cont.

Analyte	SE Outside Corner of MAF (mg/kg-dry)	SE Inside Corner over capsule (mg/kg-dry)	SE Inside Corner Near Air Intake Vent (mg/kg-dry)
Methyl Parathion	Not Detected	Not Detected	Not Detected
Phorate	Not Detected	Not Detected	Not Detected
Parathion	Not Detected	Not Detected	Not Detected
Methamidophos	Not Detected	Not Detected	Not Detected
Malathion	Not Detected	Not Detected	Not Detected
Ethoprop	Not Detected	Not Detected	Not Detected
Dicrotophos	Not Detected	Not Detected	Not Detected
Diazinon	Not Detected	Not Detected	Not Detected
Chlorpyrifos	Not Detected	Not Detected	Not Detected
Terbufos	Not Detected	Not Detected	Not Detected

Table 11M: Air Direct Reading Values

Analyte	Topside Measured Value	LCC Measure Value	Recommended Range
Carbon Dioxide	481 ppm	618 ppm	1000 ppm
Relative Humidity	55.3%	33.6%	30% - 60%
Temperature	69°F	73.1°F	72°F - 80°F
Carbon Monoxide	0.1 ppm	2.9 ppm	25 ppm (8-hr TWA)
Ozone	0	0	0.1 ppm (8-hr TWA)

Table 12M: Water Direct Reading Values

Analyte	Topside Measured Value	LCC Measured Value	Recommended Range
pH	>8.5	>8.5	6.5 - 8.5
Free Available Chlorine	0.29	0.76	> 0 mg/L; < 4 mg/L
Total Available Chlorine	0.31	0.69	> 0 mg/L; < 4 mg/L

Appendix 14: MAF NOVEMBER (N-01) Results, Sampled on 13 July 2023

Table 1N: PCB Swipe Sampling

Location	Analyte	Result (µg/100 cm^2)	Standard (40 CFR Part 761) (µg/100 cm^2)
Digital Data Group – Surface	Total PCBs	Not Detected	10
Digital Data Group – Underside	Total PCBs	Not Detected	10
DC Power Supply – Surface (PCB Sticker)	Total PCBs	Not Detected	10
DC Power Supply – Ground Level (PCB Sticker)	Total PCBs	Not Detected	10
Left Console Keyboard	Total PCBs	Not Detected	10
Left Console Display Screen	Total PCBs	Not Detected	10
Right Console Keyboard	Total PCBs	Not Detected	10
Right Console Display Screen	Total PCBs	Not Detected	10
UHF Radio	Aroclor 1254	1.22	10
	Total PCBs	1.22	10
Wing 5 LCPA Panel Door – Surface	Total PCBs	Not Detected	10
Wing 5 LCPA – Underside	Total PCBs	Not Detected	10
LCC Entry Box in Ceiling (PCB Sticker)	Total PCBs	Not Detected	10
LCC Bathroom Handle	Total PCBs	Not Detected	10
Filtron R.F. Interference Filter – Surface	Total PCBs	Not Detected	10
MPP Access Cover – Inside Surface	Total PCBs	Not Detected	10
Elevator Buttons	Total PCBs	Not Detected	10
MEADS/KL86 Buttons in SFC Room	Total PCBs	Not Detected	10
Motorola Phone Green Button	Total PCBs	Not Detected	10
SFC Door Handle to LCC	Total PCBs	Not Detected	10
Common Area Dining Table	Total PCBs	Not Detected	10

Table 2N: Air Sampling Results – PCBs

Analyte	LCC Result (mg/m^3)	Topside Result (mg/m^3)
Aroclor 1016	<0.0021	<0.0021
Aroclor 1221	<0.0021	<0.0021
Aroclor 1232	<0.0021	<0.0021
Aroclor 1242	<0.0021	<0.0021
Aroclor 1248	<0.0021	<0.0021
Aroclor 1254	<0.0021	<0.0021
Aroclor 1260	<0.0021	<0.0021

Table 3N: Air Sampling Results – Organophosphates

Analyte	LCC (8hr) Result (mg/m^3)	Topside (8hr) Result (mg/m^3)	LCC (2hr) Result (mg/m^3)	Topside (2hr) Result (mg/m^3)
Chloropyrifos (Dursban)	<0.0021	<0.0021	N/A	N/A
Diazinon	<0.0021	<0.0021	N/A	N/A
Dicrotophos	<0.0021	<0.0021	N/A	N/A
Ethoprophos (Mocap)	<0.0021	<0.0021	N/A	N/A
Malathion	N/A	N/A	<0.0083	<0.0083
Methamidophos	<0.0042	<0.0042	N/A	N/A
Methyl Parathion	<0.0021	<0.0021	N/A	N/A
Parathion (Parathion Ethyl)	<0.0021	<0.0021	N/A	N/A
Phorate	<0.0021	<0.0021	N/A	N/A
Terbufos	<0.0021	<0.0021	N/A	N/A

Table 4N: Air Sampling Results – VOCs

Analyte	LCC Result (µg/m^3)	Topside Result (µg/m^3)
1,1,1,2-Tetrachloroethane	<10	<10
1,1,1-Trichloroethane	<10	<10
1,1,2,2-Tetrachloroethane	<10	<10
1,1,2-Trichloroethane	<10	<10
1,1-Dichloroethane	<10	<10
1,1-Dichloroethylene	<10	<10
1,1-Dichloropropylene	<10	<10
1,2,3-Trichlorobenzene	<10	<10
1,2,3-Trichloropropane	<10	<10
1,2,4-Trichlorobenzene	<10	<10
1,2,4-Trimethylbenzene	<10	<10
1,2-Dibromo-3-chloropropane (DBCP)	<10	<10
Ethylene Dibromide	<10	<10
1,2-Dichlorobenzene	<10	<10
1,2-Dichloroethane	<10	<10
1,2-Dichloropropane	<10	<10
1,3,5-Trimethylbenzene	<10	<10
1,3-Dichlorobenzene	<10	<10
1,3-Dichloropropane	<10	<10
1,4-Dichlorobenzene	<10	<10
2-Chlorotoluene	<10	<10
4-chlorotoluene	<10	<10
Benzene	<10	<10
Bromobenzene	<10	<10
Bromochloromethane	<10	<10
Bromodichloromethane	<10	<10
Bromoform	<10	<10
Carbon Tetrachloride	<10	<10
Chlorobenzene	<10	<10
Chloroform	<10	<10
cis-1,2-Dichloroethylene	<10	<10
cis-1,3-Dichloropropene	<10	<10
Dibromochloromethane	<10	<10
Ethylbenzene	<10	<10
Hexachlorobutadiene	<10	<10

Table 4N: Air Sampling Results – VOCs Cont.

Analyte	LCC Result ($\mu g/m^3$)	Topside Result ($\mu g/m^3$)
Isopropylbenzene	<10	<10
Methylene Chloride(Dichloromethane)	<10	<10
p+m-Xylene	<10	<10
Naphthalene	<10	<10
n-Butylbenzene	<10	<10
n-Propylbenzene	<10	<10
o-Xylene	<10	<10
p-isopropyltoluene	<10	<10
sec-butylbenzene	<10	<10
Styrene	<10	<10
tert-butylbenzene	<10	<10
Tetrachloroethylene	<10	<10
Toluene	<10	<10
trans-1,2-Dichloroethylene	<10	<10
trans-1,3-Dichloropropene	<10	<10
Trichloroethylene	<10	<10

Table 5N: Water Sampling Results – Nitrate/Nitrite

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Nitrate/Nitrite (Total)	<0.10	<0.10	10

Table 6N: Water Sampling Results – Dioxins

Analyte	Topside Result (pg/L)	LCC Result (pg/L)	Maximum Containment Level (pg/L)
2-3-7-8-Tetrachlorodibenzo-p-dioxin	<4.4	<4.1	30

Table 7N: Water Sampling Results – Diquat/Paraquat

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Diquat	<0.0004	<0.0004	0.02
Paraquat	<0.0004	<0.0004	N/A

Table 8N: Water Sampling Results – PCBs

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
PCB-1016	<0.00008	<0.00008	0.002
PCB-1221	<0.0001	<0.0001	0.002
PCB-1232	<0.0001	<0.0001	0.002
PCB-1242	<0.0001	<0.0001	0.002
PCB-1248	<0.0001	<0.0001	0.002
PCB-1254	<0.0001	<0.0001	0.002
PCB-1260	<0.0001	<0.0001	0.002
Total PCBs	<0.0001	<0.0001	0.002

Table 9N: Water Sampling Results – Pesticides/SVOCs

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
1-Methylnapthalene	<0.00011	<0.0001	N/A
2-Methylnapthalene	<0.00011	<0.0001	N/A
4,4'-DDD	<0.00011	<0.0001	N/A
4,4'-DDE	<0.00011	<0.0001	N/A
4,4'-DDT	<0.00011	<0.0001	N/A
Acenaphthene	<0.00011	<0.0001	N/A
Acenaphthylene	<0.00011	<0.0001	N/A
Alachlor	<0.00011	<0.0001	0.002
Aldrin	<0.00011	<0.0001	0.00001
alpha-Chlordane	<0.00011	<0.0001	N/A

Table 9N: Water Sampling Results – Pesticides/SVOCs Cont.

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Anthracene	<0.00011	<0.0001	N/A
Atrazine	<0.00011	<0.0001	0.003
Benzo[a]anthracene	<0.00011	<0.0001	0.0001
Benzo[a]pyrene	<0.000021	<0.00002	0.0002
Benzo[b]fluoranthene	<0.00011	<0.0001	0.0002
Benzo[g,h,i]perylene	<0.00011	<0.0001	N/A
Benzo[k]fluoranthene	<0.00011	<0.0001	0.0002
Bromacil	<0.00011	<0.0001	N/A
Butachlor	<0.00011	<0.0001	N/A
Butylbenzylphthalate	<0.0011	<0.001	N/A
Chlorothalonil	<0.00011	<0.0001	N/A
Chrysene	<0.00011	<0.0001	0.0002
Cyanazine	<0.00011	<0.0001	N/A
Deisopropylatrazine	<0.0011	<0.001	N/A
Desethylatrazine	<0.0011	<0.001	N/A
Di(2-ethylhexyl)phthalate	<0.00064	<0.0006	0.006
Di(2-ethylhexyl)adipate	<0.00064	<0.0006	0.40
Diazinon	<0.00011	<0.0001	N/A
Dibenz[a,h]anthracene	<0.00011	<0.0001	0.0003
Dieldrin	<0.00011	<0.0001	N/A
Diethylphthalate	<0.0011	<0.001	N/A
Dimethoate	<0.00054	<0.0005	N/A
Dimethylphthalate	<0.0011	<0.001	N/A
Di-n-butylphthalate	<0.0021	<0.002	N/A
Di-n-octylphthalate	<0.0021	<0.002	N/A
Endrin	<0.000011	<0.0001	0.002
EPTC	<0.00011	<0.00001	N/A
Fluoranthene	<0.00011	<0.0001	N/A
Fluorene	<0.00011	<0.0001	N/A
gamma-BHC (Lindane)	<0.000021	<0.00002	0.0002
gamma-Chlordane	<0.00011	<0.0001	0.100
Heptachlor	<0.000011	<0.00001	0.0004
Heptachlor Epoxide	<0.000011	<0.00001	0.0002
Hexachlorobenzene	<0.00011	<0.0001	0.001
Hexachlorocyclopentadiene	<0.00011	<0.0001	0.05
Indeno[1,2,3-cd]pyrene	<0.00011	<0.0001	0.0004
Malathion	<0.00011	<0.0001	N/A

Table 9N: Water Sampling Results –Pesticides/SVOCs Cont.

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Methoxychlor	<0.00011	<0.0001	0.04
Metolachlor	<0.00011	<0.0001	N/A
Metribuzin	<0.00011	<0.0001	N/A
Molinate	<0.00011	<0.0001	N/A
Naphthalene	<0.00011	<0.0001	N/A
Parathion	<0.00054	<0.0005	N/A
Phenanthrene	<0.00011	<0.0001	N/A
Prometryn	<0.00011	<0.0001	N/A
Propachlor	<0.00011	<0.0001	N/A
Pyrene	<0.00011	<0.0001	0.0002
Simazine	<0.000075	<0.00007	0.004
Terbacil	<0.00011	<0.0001	N/A
Thiobencarb	<0.00011	<0.0001	N/A
trans-Nonachlor	<0.00011	<0.0001	0.002
Trifluralin	<0.00011	<0.0001	N/A

Table 10N: Soil Sampling Results

Analyte	3 Ft from Bldg Outside Vent Intake (mg/kg-dry)	Center of MAF (mg/kg-dry)	SW of MAF, Outside Fenceline 4 Ft Backside of MAF (mg/kg-dry)
Methyl Parathion	Not Detected	Not Detected	Not Detected
Phorate	Not Detected	Not Detected	Not Detected
Parathion	Not Detected	Not Detected	Not Detected
Methamidophos	Not Detected	Not Detected	Not Detected
Malathion	Not Detected	Not Detected	Not Detected
Ethoprop	Not Detected	Not Detected	Not Detected
Dicrotophos	Not Detected	Not Detected	Not Detected
Diazinon	Not Detected	Not Detected	Not Detected
Chlorpyrifos	Not Detected	Not Detected	Not Detected
Terbufos	Not Detected	Not Detected	Not Detected

Table 10N: Soil Sampling Results Cont.

Analyte	Air Handler Corner, 4 Ft from Fence (mg/kg-dry)	SE of MAF Outside Fenceline, 5 Ft (by Antenna w/Wind Mill) (mg/kg-dry)	NE Corner, 4 ft from Outside Fenceline (mg/kg-dry)
Methyl Parathion	Not Detected	Not Detected	Not Detected
Phorate	Not Detected	Not Detected	Not Detected
Parathion	Not Detected	Not Detected	Not Detected
Methamidophos	Not Detected	Not Detected	Not Detected
Malathion	Not Detected	Not Detected	Not Detected
Ethoprop	Not Detected	Not Detected	Not Detected
Dicrotophos	Not Detected	Not Detected	Not Detected
Diazinon	Not Detected	Not Detected	Not Detected
Chlorpyrifos	Not Detected	Not Detected	Not Detected
Terbufos	Not Detected	Not Detected	Not Detected

Table 11N: Air Direct Reading Values

Analyte	Topside Measured Value	LCC Measure Value	Recommended Range
Carbon Dioxide	529 ppm	675 ppm	1000 ppm
Relative Humidity	50.6%	51.5%	30% - 60%
Temperature	70.9°F	71°F	72°F - 80°F
Carbon Monoxide	0.2 ppm	1.4 ppm	25 ppm (8-hr TWA)
Ozone	0 ppm	0 ppm	0.1 ppm (8-hr TWA)

Table 12N: Water Direct Reading Values

Analyte	Topside Measured Value	LCC Measured Value	Recommended Range
pH	>8.5	>8.5	6.5 - 8.5
Free Available Chlorine	0.31	0.91	> 0 mg/L; < 4 mg/L
Total Available Chlorine	0.79	1.03	> 0 mg/L; < 4 mg/L

Appendix 15: MAF OSCAR (O-01) Results, Sampled on 14 July 2023

Table 1O: PCB Swipe Sampling

Location	Analyte	Result (µg/100 cm^2)	Standard (40 CFR Part 761) (µg/100 cm^2)
Receiver Digital Data (SN: 0003053) – Surface	Total PCBs	Not Detected	10
Receiver Digital Data (SN: 0003053) – Underside	Total PCBs	Not Detected	10
Battery Charger Access – Surface (PCB sticker)	Total PCBs	Not Detected	10
Battery Charger Access – Ground Level (PCB sticker)	Aroclor 1254	1.27	10
	Total PCBs	1.27	10
Left Console Keyboard	Total PCBs	Not Detected	10
Left Console Display Screen	Total PCBs	Not Detected	10
Right Console Keyboard	Total PCBs	Not Detected	10
Right Console Display Screen	Total PCBs	Not Detected	10
Black DC/VF (SN:1248) Modem – Surface	Total PCBs	Not Detected	10
Red DC Patch (SN:1050) – Surface	Total PCBs	Not Detected	10
Power Supply 12OV Circuit Breaker (SN:000016) – Surface	Total PCBs	Not Detected	10
Wing 5 LCPA Panel (SN: 12-26601/5-004) – Surface	Total PCBs	Not Detected	10
Wing 5 LCPA Panel (SN: 12-26601/5-004) – Underside	Total PCBs	Not Detected	10
LCC Ceiling Entry Way Box	Total PCBs	Not Detected	10
Motor Generator in Floor	Total PCBs	Not Detected	10
EMI Filter – Surface (LCEB)	Total PCBs	Not Detected	10
EMI Filter – Ground Level (LCEB)	Total PCBs	Not Detected	10
MPP Access Cover (LCEB)	Total PCBs	Not Detected	10
Elevator Buttons	Total PCBs	Not Detected	10
MEADS/KL86 Buttons in SFC Room	Total PCBs	Not Detected	10

Table 2O: Air Sampling Results – PCBs

Analyte	LCC Result (mg/m^3)	Topside Result (mg/m^3)
Aroclor 1016	<0.0021	<0.0021
Aroclor 1221	<0.0021	<0.0021
Aroclor 1232	<0.0021	<0.0021
Aroclor 1242	<0.0021	<0.0021
Aroclor 1248	<0.0021	<0.0021
Aroclor 1254	<0.0021	<0.0021
Aroclor 1260	<0.0021	<0.0021

Table 3O: Air Sampling Results – Organophosphates

Analyte	LCC (8hr) Result (mg/m^3)	Topside (8hr) Result (mg/m^3)	LCC (2hr) Result (mg/m^3)	Topside (2hr) Result (mg/m^3)
Chloropyrifos (Dursban)	<0.0021	<0.0021	N/A	N/A
Diazinon	<0.0021	<0.0021	N/A	N/A
Dicrotophos	<0.0021	<0.0021	N/A	N/A
Ethoprophos (Mocap)	<0.0021	<0.0021	N/A	N/A
Malathion	N/A	N/A	<0.0083	<0.0083
Methamidophos	<0.0042	<0.0042	N/A	N/A
Methyl Parathion	<0.0021	<0.0021	N/A	N/A
Parathion (Parathion Ethyl)	<0.0021	<0.0021	N/A	N/A
Phorate	<0.0021	<0.0021	N/A	N/A
Terbufos	<0.0021	<0.0021	N/A	N/A

Table 4O: Air Sampling Results – VOCs

Analyte	LCC Result (µg/m^3)	Topside Result (µg/m^3)
1,1,1,2-Tetrachloroethane	<10	<10
1,1,1-Trichloroethane	<10	<10
1,1,2,2-Tetrachloroethane	<10	<10
1,1,2-Trichloroethane	<10	<10
1,1-Dichloroethane	<10	<10
1,1-Dichloroethylene	<10	<10
1,1-Dichloropropylene	<10	<10
1,2,3-Trichlorobenzene	<10	<10
1,2,3-Trichloropropane	<10	<10
1,2,4-Trichlorobenzene	<10	<10
1,2,4-Trimethylbenzene	<10	<10
1,2-Dibromo-3-chloropropane (DBCP)	<10	<10
Ethylene Dibromide	<10	<10
1,2-Dichlorobenzene	<10	<10
1,2-Dichloroethane	<10	<10
1,2-Dichloropropane	<10	<10
1,3,5-Trimethylbenzene	<10	<10
1,3-Dichlorobenzene	<10	<10
1,3-Dichloropropane	<10	<10
1,4-Dichlorobenzene	<10	<10
2-Chlorotoluene	<10	<10
4-chlorotoluene	<10	<10
Benzene	15	<10
Bromobenzene	<10	<10
Bromochloromethane	<10	<10
Bromodichloromethane	<10	<10
Bromoform	<10	<10
Carbon Tetrachloride	<10	<10
Chlorobenzene	<10	<10
Chloroform	<10	<10
cis-1,2-Dichloroethylene	<10	<10
cis-1,3-Dichloropropene	<10	<10
Dibromochloromethane	<10	<10
Ethylbenzene	<10	<10
Hexachlorobutadiene	<10	<10

Table 4O: Air Sampling Results – VOCs Cont.

Analyte	LCC Result ($\mu g/m^3$)	Topside Result ($\mu g/m^3$)
Isopropylbenzene	<10	<10
Methylene Chloride(Dichloromethane)	<10	<10
p+m-Xylene	<10	<10
Naphthalene	<10	<10
n-Butylbenzene	<10	<10
n-Propylbenzene	<10	<10
o-Xylene	<10	<10
p-isopropyltoluene	<10	<10
sec-butylbenzene	<10	<10
Styrene	<10	<10
tert-butylbenzene	<10	<10
Tetrachloroethylene	<10	<10
Toluene	20	<10
trans-1,2-Dichloroethylene	<10	<10
trans-1,3-Dichloropropene	<10	<10
Trichloroethylene	<10	<10

Table 5O: Water Sampling Results – Nitrate/Nitrite

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Nitrate/Nitrite (Total)	3.7	3.7	10

Table 6O: Water Sampling Results – Dioxins

Analyte	Topside Result (pg/L)	LCC Result (pg/L)	Maximum Containment Level (pg/L)
2-3-7-8-Tetrachlorodibenzo-p-dioxin	<4.0	<4.3	30

Table 7O: Water Sampling Results – Diquat/Paraquat

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Diquat	<0.0004	<0.0004	0.02
Paraquat	<0.0004	<0.0004	N/A

Table 8O: Water Sampling Results – PCBs

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
PCB-1016	<0.00008	<0.00008	0.002
PCB-1221	<0.0001	<0.0001	0.002
PCB-1232	<0.0001	<0.0001	0.002
PCB-1242	<0.0001	<0.0001	0.002
PCB-1248	<0.0001	<0.0001	0.002
PCB-1254	<0.0001	<0.0001	0.002
PCB-1260	<0.0001	<0.0001	0.002
Total PCBs	<0.0001	<0.0001	0.002

Table 9O: Water Sampling Results – Pesticides/SVOCs

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
1-Methylnapthalene	<0.000098	<0.00011	N/A
2-Methylnapthalene	<0.000098	<0.00011	N/A
4,4'-DDD	<0.000098	<0.00011	N/A
4,4'-DDE	<0.000098	<0.00011	N/A
4,4'-DDT	<0.000098	<0.00011	N/A
Acenaphthene	<0.000098	<0.00011	N/A
Acenaphthylene	<0.000098	<0.00011	N/A
Alachlor	<0.000098	<0.00011	0.002
Aldrin	<0.000098	<0.00011	0.00001
alpha-Chlordane	<0.000098	<0.00011	N/A

Table 9O: Water Sampling Results – Pesticides/SVOCs Cont.

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Anthracene	<0.000098	<0.00011	N/A
Atrazine	<0.000098	<0.00011	0.003
Benzo[a]anthracene	<0.000098	<0.00011	0.0001
Benzo[a]pyrene	<0.00002	<0.000021	0.0002
Benzo[b]fluoranthene	<0.000098	<0.00011	0.0002
Benzo[g,h,i]perylene	<0.000098	<0.00011	N/A
Benzo[k]fluoranthene	<0.000098	<0.00011	0.0002
Bromacil	<0.000098	<0.00011	N/A
Butachlor	<0.000098	<0.00011	N/A
Butylbenzylphthalate	<0.00098	<0.0011	N/A
Chlorothalonil	<0.000098	<0.00011	N/A
Chrysene	<0.000098	<0.00011	0.0002
Cyanazine	<0.000098	<0.00011	N/A
Deisopropylatrazine	<0.00098	<0.0011	N/A
Desethylatrazine	<0.00098	<0.0011	N/A
Di(2-ethylhexyl)phthalate	<0.00059	<0.00064	0.006
Di(2-ethylhexyl)adipate	<0.00059	<0.00064	0.40
Diazinon	<0.000098	<0.00011	N/A
Dibenz[a,h]anthracene	<0.000098	<0.00011	0.0003
Dieldrin	<0.000098	<0.00011	N/A
Diethylphthalate	<0.00098	<0.0011	N/A
Dimethoate	<0.00049	<0.00054	N/A
Dimethylphthalate	<0.00098	<0.0011	N/A
Di-n-butylphthalate	0.02	0.024	N/A
Di-n-octylphthalate	<0.002	<0.0021	N/A
Endrin	<0.0000098	<0.000011	0.002
EPTC	<0.000098	<0.00011	N/A
Fluoranthene	<0.000098	<0.00011	N/A
Fluorene	<0.000098	<0.00011	N/A
gamma-BHC (Lindane)	<0.00002	<0.000021	0.0002
gamma-Chlordane	<0.000098	<0.00011	0.100
Heptachlor	<0.0000098	<0.000011	0.0004
Heptachlor Epoxide	<0.0000098	<0.000011	0.0002
Hexachlorobenzene	<0.000098	<0.00011	0.001
Hexachlorocyclopentadiene	<0.000098	<0.00011	0.05
Indeno[1,2,3-cd]pyrene	<0.000098	<0.00011	0.0004
Malathion	<0.000098	<0.00011	N/A

Table 9O: Water Sampling Results – Pesticides/SVOCs Cont.

Analyte	Topside Result (mg/L)	LCC Result (mg/L)	Maximum Containment Level (mg/L)
Methoxychlor	<0.000098	<0.00011	0.04
Metolachlor	<0.000098	<0.00011	N/A
Metribuzin	<0.000098	<0.00011	N/A
Molinate	<0.000098	<0.00011	N/A
Naphthalene	<0.000098	<0.00011	N/A
Parathion	<0.00049	<0.00054	N/A
Phenanthrene	<0.000098	<0.00011	N/A
Prometryn	<0.000098	<0.00011	N/A
Propachlor	<0.000098	<0.00011	N/A
Pyrene	<0.000098	<0.00011	0.0002
Simazine	<0.000068	<0.000075	0.004
Terbacil	<0.000098	<0.00011	N/A
Thiobencarb	<0.000098	<0.00011	N/A
trans-Nonachlor	<0.000098	<0.00011	0.002
Trifluralin	<0.000098	<0.00011	N/A

Table 10O: Soil Sampling Results

Analyte	Outside Air Intake Vent, N of Bldg (mg/kg-dry)	NW Corner Above Capsule (mg/kg-dry)	SW Corner Outside Fence (mg/kg-dry)
Methyl Parathion	Not Detected	Not Detected	Not Detected
Phorate	Not Detected	Not Detected	Not Detected
Parathion	Not Detected	Not Detected	Not Detected
Methamidophos	Not Detected	Not Detected	Not Detected
Malathion	Not Detected	Not Detected	Not Detected
Ethoprop	Not Detected	Not Detected	Not Detected
Dicrotophos	Not Detected	Not Detected	Not Detected
Diazinon	Not Detected	Not Detected	Not Detected
Chlorpyrifos	Not Detected	Not Detected	Not Detected
Terbufos	Not Detected	Not Detected	Not Detected

Table 10O: Soil Sampling Results Cont.

Analyte	NE Corner Outside Fence (mg/kg-dry)	SE Corner Outside Fence (mg/kg-dry)	NW Corner Outside Fence (mg/kg-dry)
Methyl Parathion	Not Detected	Not Detected	Not Detected
Phorate	Not Detected	Not Detected	Not Detected
Parathion	Not Detected	Not Detected	Not Detected
Methamidophos	Not Detected	Not Detected	Not Detected
Malathion	Not Detected	Not Detected	Not Detected
Ethoprop	Not Detected	Not Detected	Not Detected
Dicrotophos	Not Detected	Not Detected	Not Detected
Diazinon	Not Detected	Not Detected	Not Detected
Chlorpyrifos	Not Detected	Not Detected	Not Detected
Terbufos	Not Detected	Not Detected	Not Detected

Table 11O: Air Direct Reading Values

Analyte	Topside Measured Value	LCC Measure Value	Recommended Range
Carbon Dioxide	682 ppm	717 ppm	1000 ppm
Relative Humidity	60.3%	45.7%	30% - 60%
Temperature	71.6°F	72°F	72°F - 80°F
Carbon Monoxide	0.1 ppm	4.4 ppm	25 ppm (8-hr TWA)
Ozone	0 ppm	0 ppm	0.1 ppm (8-hr TWA)

Table 12O: Water Direct Reading Values

Analyte	Topside Measured Value	LCC Measured Value	Recommended Range
pH	> 8.5	>8.5	6.5 - 8.5
Free Available Chlorine	0.31	0.91	> 0 mg/L; < 4 mg/L
Total Available Chlorine	0.79	1.03	> 0 mg/L; < 4 mg/L