Mr. Ramon Ortiz
NGB/A4AM
3501 Fetchet Avenue
Joint Base Andrews MD 20762-5157

Dear Mr. Ortiz:

The Midwest Environmental Justice Organization's core mission is to work with communities to identify and work together to prevent exposures to toxic chemicals, especially among the most vulnerable people such as low income people, people of color, children, and elderly.

We are opposed to the F-35s. Their placement at Truax Field in Madison Wisconsin will expose thousands of people in our community—especially low income people of color—to toxic noise and chemical pollution.

We request a revised Environmental Impact Statement on the proposed beddown of F-35A jet fighters at Truax Field in Madison, WI. The Draft Environmental Impact Statement (DEIS) did not respond to several of our EIS scoping comments (see Appendix A). A previous Environmental Assessment (EA) closely associated with the projects in the Draft EIS violated CFR 989.19 by not including the appropriate type and level of public review and improperly segmented the EA from the EIS projects, violating NEPA. See here and here.

We ask that the revised EIS address the above issues.

Further, the DEIS has significant gaps in the following areas that should be addressed:
1. Environmental justice
2. PFAS contamination
3. Hazardous chemicals other than PFAS
4. Stormwater discharges of toxic chemicals into Starkweather Creek
5. Effects on wildlife, public space and Cherokee Marsh
6. Health/safety impacts of crashes/fires & weaponry
7. Cumulative impacts
8. Unavoidable impacts

There are other significant gaps in addition to those listed above (including inaccurate noise modelling, inadequate assessments of air pollution/noise impacts to human health, impacts on wetlands, climate change impacts, and questions about the potential use of nuclear weapons) that we did not have time to outline here. We agree with gaps and questions raised by Safe Skies Clean Water about the noise modelling and health effects and the Madison Sustainability Committee on climate change impacts.

In addition to the above gaps, many findings of "no significant impact" in the DEIS are supported by vague statements and claims with outdated, inadequate, or no scientific studies supporting them. Many claims are contradicted by other statements in the document.

Because of the above gaps and inadequacies, the Draft EIS does not meet the requirements of the original intent of the National Environmental Policy Act (NEPA) as outlined in Sec. 101 [42 USC § 4331]. This act states that "it is the continuing responsibility of the Federal Government to… 1. fulfill the responsibilities of each generation as trustee of the environment for succeeding generations; 2. **assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings**; 3. attain the widest range of beneficial uses of the environment **without degradation, risk to health or safety, or other undesirable and unintended consequences**; 4. preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity, and variety of individual choice; 5. achieve a balance between population and resource use which will **permit high standards of living and a wide sharing of life's amenities**; and 6. enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources." The act also says that "**The Congress recognizes that each person should enjoy a healthful environment** and that each person has a responsibility to contribute to the preservation and enhancement of the environment."

Critical gaps and inadequacies are described in more detail in the remainder of this document. Each section (#1-8) begins with our requests for revisions and is followed by background on these requests.

Thank you.

/s/ Maria Powell

Maria Powell, PhD
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1. Environmental Justice Analysis

MEJO requests for revised EIS per #1: The EIS should: a) re-evaluate impacts to low income, minority communities around the base using the appropriate benchmark (option b); b) re-model noise impacts to include low income minority neighborhoods outside the 65 dB noise contour; c) noise analyses should include all "points of interest" in the area around the base that house or educate children (Montessori, East Madison Community Center, Salvation Army, schools and more); d) EIS should consider health impacts other than noise to these vulnerable communities (exposures to toxic chemicals, air pollution, vulnerability to jet crashes, contaminants in fish from Starkweather Creek/Lake Monona); e) during the EIS revision process, in line with CfR §989.19, the EPF should "make special efforts to ensure that these potentially impacted populations are brought into the review process" in line with Promising Practices for EJ Methodologies in NEPA Reviews.

BACKGROUND for requests related to #1

a. The analysis used an inappropriate benchmarks to identify minority populations

According to the Title 32 (National Defense) Code of Federal Regulations (CfR) §989.33 (Environmental justice): "During the preparation of environmental analyses…the EPF should ensure compliance with the provisions of E.O. 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, and Executive Memorandum of February 11, 1994."

Executive Order (EO) 12898 addresses potential disproportionate human health and environmental impacts that a project may have on minority or low-income communities. The Draft EIS (DEIS) cites EPA's requirement that: "no group of people should bear a disproportionate share of the negative environmental consequences resulting from industrial, governmental, and commercial operations or policies." (pg. 3-35)

In order to accurately identify whether minorities and low-income people are disproportionately negatively affected, and the extent of those negative effects, these groups need to be accurately identified.

According to the Draft EIS, the Council on Environmental Quality (CEQ) states that "minority populations should be identified where **either**: (a) the minority population of the affected areas exceeds 50 percent, **or** (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis" (CEQ 1997) (pg. 3-35).

The Draft EIS authors chose option "a" thereby significantly underestimating minority populations living near the base and thereby also underestimating the environmental justice impacts of the noise and other impacts. (pg. 3-36),

Option "a" is not an appropriate benchmark for Madison/Dane County. As the City of Madison's Sept. 10, 2019 staff analysis noted, using above 50% minority as the benchmark "appears to be a very high bar for measuring impacts on communities of color particularly in Madison and Dane County, where persons of color make up 26% and 20% of the population respectively. Using this metric, the only block groups flagged for having a minority population are west of the airport, generally outside the 65 db curve. **Nearly every impacted area within the City of Madison belongs to a census tract with rates of persons of color well above the city- and county-wide averages.** The block group with the largest expansion of the impacted area (Carpenter Ridgeway) is

comprised of 43.9% persons of color. While the EIS acknowledges it has a disproportional impact on persons of color, its methodology results in this issue being understated." (highlighting in original).

The October 30, 2019 Memo by the Madison Community Development Authority (CDA), owner of public housing at Truax and Rethke neighborhoods near the base, supports the concerns outlined above.

In sum, the environmental justice analyses in the EIS need to be completely revised using this more appropriate benchmark for what counts as "minority populations."

d. Low income, people of color just outside the 65 dB contour were not considered

The technically questionable and confusing sound modeling in the DEIS (based on unclear assumptions and software) deems many of the most vulnerable low income people of color as being outside the 65 dB noise contour, thereby leaving them out of the environmental justice analyses.

Noting this problem, the Sept. 10, 2019 City of Madison document states: "**nearly every block group within the impacted area has poverty rates above the city-wide average**" but "**there are several concentrations of poverty and persons of color just outside the 65 db contour**, including the CDA Truax housing, CDA Webb-Rethke townhomes and other housing near Worthington Park, and near the intersection of Packers Avenue and Northport Drive. While these areas will experience virtually identical noise exposure as residents who live on the contour line, they will not be eligible for federal sound mitigation funding through the Noise Compatibility Program. If Truax is selected for future F35s, it's a reasonable conclusion that non-mitigated areas immediately adjacent to but outside the 65 dB contour may experience more significant impacts than mitigated (soundproofed) residences inside the impacted area." (highlights in original)

The DEIS also states that "an additional 15 acres of Mobile Home Park would be newly exposed to 65 to 70 dB DNL and 1 new acre exposed to 70 to 75 dB DNL. This would be considered a significant impact." While this residential area will be exposed to the highest noise levels, the mobile home park does not qualify for noise mitigation through FAA and is therefore highly vulnerable and negatively impacted. Impacts to these low income people are not discussed in the DEIS, nor were any efforts made by Air National Guard to include them in the EIS process (see more below).

The DEIS also omits several schools/daycares and/or community centers (where children go to school and/or play) in its list of "points of interest" (POIs) near the base just outside of the 65dB line and who are currently affected by F-16 noise and will be significantly affected by F-35 noise, including Montessori, the East Madison Community Center, Salvation Army Center, many public schools, and more.

In sum, the faulty modeling, benchmarks and assumptions in the DEIS will exacerbate existing environmental injustices in these neighborhoods and also create new ones—because the most vulnerable people in the neighborhood will not be able to get mitigation based on this analysis.

b. Impacts other than noise to low income people, people of color, children, elderly and disabled were not included in analyses

Again, the DEIS states that: "no group of people should bear a disproportionate share of the negative environmental consequences resulting from industrial, governmental, and commercial operations or policies." (pg. 3-35)

Page 3-36 of the Draft EIS quotes and cites "EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks* (1997). EO 13045 says, "A growing body of scientific knowledge demonstrates that children may suffer disproportionately from environmental health risks and safety risks. These risks arise because: children's neurological, immunological, digestive, and other bodily systems are still developing; children eat more food, drink more fluids, and breathe more air in proportion to their bodyweight than adults; children's size and weight may diminish their protection from standard safety features; and children's behavior patterns may make them more susceptible to accidents because they are less able to protect themselves. Therefore, to the extent permitted by law and appropriate, and consistent with the agency's mission, each Federal agency:(a) shall make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children; and(b) shall ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks."

The draft EIS also says "Additionally, children and the elderly are identified in the USAF *Guide for Environmental Justice Analysis under the Environmental Impact Analysis Process* as sensitive receptors (AFCEC 2014). Children are defined as those individuals under the age of 18 years and the elderly are defined as those who are aged 65 years and older." (pg. 3-36).

There are several places were elderly people live just outside of the 65 dB line, including the assisted living on Packers/Tennyson, apartments along Northport, and in the Truax apartments. The DEIS doesn't even mention consideration of these vulnerable people in its noise analyses.

Many disabled persons live in areas just outside of the 65 dB noise contour and were also not considered in the analyses.

The "negative environmental consequences" and "environmental health risks and safety risks" cited above (from the DEIS) include more than noise—but the DEIS does not mention them.

Elderly, children, disabled people, people of color and low income people living near the base, especially along its takeoff and landing pathways, are more vulnerable to crashes of planes taking off and/or landing. They are also more vulnerable to the chemicals released during these crashes and emergency responses to them—particulates and other toxic air releases from burning planes and weapons, fire-fighting foams containing PFAS, and more.

On a more ongoing basis, vulnerable people near the base could be exposed to air emissions from planes taking off and landing. They could also be exposed to toxic chemicals released from F-35 maintenance and operations that are released into groundwater plumes that travel under their homes and may vaporize into them.

F-35 operations and maintenance will also release toxic contaminants via stormwater discharges, air, groundwater leaching, and soil runoff into Starkweather Creek, which flows adjacent to many of these neighborhoods. For some in these neighborhoods, especially children, this is their only greenspace for recreation, exploring etc.

The potential for crashes—and their health, safety, psychological and environmental impacts to these neighborhoods, who are more vulnerable because of their physical proximity to takeoff and

landing pathways of the jets, should also be considered in the environmental justice analyses (see more in later section on crashes).

Executive Order 12898 also highlights the need to address risks to subsistence anglers who eat fish contaminated by toxic chemicals. We now know that PFAS from the base has contaminated Starkweather Creek along its entire length. Though Starkweather Creek fish have not yet been tested, based on the PFAS levels already found in Starkweather Creek water, they are likely significant, as fish can build up PFAS levels orders of magnitude higher than the levels in water. Numerous other chemicals that have been used at the Truax base have also built up in fish over the last several decades.

Many people, including people from vulnerable neighborhoods near the base, fish from Starkweather Creek at its mouth in Lake Monona and those who eat the fish have been eating this PFAS for decades. Many of these anglers are low income and/or people of color, and some feed this fish to pregnant partners and children.

F-35 operations will require the use of a variety of chemicals that could make it into Starkweather Creek/Lake Monona and fish people eat via stormwater discharges and runoff. If F-35s crash, AFFF with PFAS (required by the FAA) will be used to extinguish any resulting fires; this will add further PFAS to the creek and its fish.

These critical environmental justice considerations related to toxic chemical exposures to people of color and low income people should be addressed in the Draft EIS.

c. EIS process did not engage low-income minority populations or other vulnerable groups,

As cited in the DEIS, USEPA defines environmental justice as, "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies" (USEPA 2018c) (pg. 3-35).

CfR PART 989.19 (3)—Environmental Impact Analysis Process (EIAP) states that during the Draft EIS process, "Where analyses indicate that a proposed action will potentially have disproportionately high and adverse human health or environmental effects on minority populations or low-income populations, *the EPF should make special efforts to ensure that these potentially impacted populations are brought into the review process*."

The following multi-agency document describes in detail current, state-of-the-art approaches in evaluating disproportionately impacted communities *along with strategies on how to effectively outreach to and meaningfully engage them*: Promising Practices for EJ Methodologies in NEPA Reviews.

There is no evidence that any efforts were made to "ensure that these potentially impacted populations" were "brought into the review process." The public meeting was held at the Alliant Energy Center, about 9 miles from these neighborhoods. A significant portion of people in these neighborhoods don't have cars, and taking public transportation would require several bus transfers and take more than an hour. The DEIS also was not translated into any other languages, nor were outreach efforts to neighborhoods done in other languages to reach groups who don't speak English. Madison Mayor Rhodes-Conway also echoed this concern in her Nov. 1, 2019 letter on the DEIS.

In sum, we saw no evidence that Air National Guard did any appropriate or meaningful outreach per the "Promising Practices" document (or any outreach at all) in the most vulnerable low income minority neighborhoods (trailer park, Truax, Darbo Webb/Rethke, etc.) to let people there know about this meeting or made any efforts to help people to get to the Alliant Energy Center meeting many miles from their neighborhoods.

2. PFAS contamination

MEJO request for revised EIS: The revised EIS should include a) plans for a comprehensive PFAS investigation before any construction is done on the 115 FW base, including full delineation of the vertical and horizontal extents of the PFAS contamination in soils, groundwater, sediments and surface waters on and off the base; b) assessments of PFAS exposures on and off the base—to military and civilian base personnel, residents of adjacent apartments/homes, business employees and MATC students adjacent to the base, via drinking water, air, consumption of fish, vapors, and other pathways.

BACKGROUND for requests per #2

According to CfR §989.31 Pollution prevention, which this EIS should address per NEPA regulations: "The Pollution Prevention Act of 1990, 42 U.S.C. 13101(b), established a national policy to prevent or reduce pollution at the source, whenever feasible. Pollution prevention approaches should be applied to all pollution-generating activities. The environmental document should analyze potential pollution that may result from the proposed action and alternatives and must discuss potential pollution prevention measures when such measures are feasible for incorporation into the proposal or alternatives. Where pollution cannot be prevented, the environmental analysis and proposed mitigation measures should include, wherever possible, recycling, energy recovery, treatment, and environmentally safe disposal actions (see AFI 32-7080, Pollution Prevention Program 11)."

The DEIS claims that "under the Proposed Action at the 115 FW installation, there would not be an increased risk of hazardous waste releases or exposure… Impacts relative to hazardous materials and wastes would not be significant."

In the case of the known PFAS contamination on the base, this is a completely unsupported statement and abundant evidence contradicts it.

Preliminary investigations have found significant levels of PFAS in soils and groundwater at the Truax ANG base, primarily from PFAS in firefighting foams used at the base. PFAS compounds have contaminated Starkweather Creek water and Madison Water Utility Well #15, resulting in this drinking water well—a critical public resource--being shut down. These huge environmental and public health impacts, which will affect people in the Madison community, wildlife, and whole ecosystems for decades to come (perhaps indefinitely), are not even mentioned in the DEIS.

Yet comprehensive PFAS investigations requested by the Wisconsin DNR in 2018 have not yet been done. Lack of comprehensive investigation/remediation of the highly toxic chemicals per- and polyfluoroalkyl substances (PFAS) at the Truax base make it impossible to adequately prevent further pollution of soils, groundwater, and surface water on and off the base, especially as construction disrupts PFAS-contaminated soils on the base. This gap also makes it impossible to determine the "environmentally safe disposal actions" for soils and other PFAS-contaminated media removed from the site would be.

A October 30, 2019 Wisconsin DNR letter supports this concern, stating that "the dEIS does not adequately address per- and polyfluoroalkyl substances (PFAS) contamination. Although there is mention of three construction projects associated with potential release locations (PRLs), there is no discussion of the probability that PFAS contamination exists beyond PRLs, of the need for a complete site investigation, or of the potential need for interim and remedial actions."

The DNR letter also says that "the discussion of media management plans on page WI-120 runs counter to state requirements" and "The DNR does not consider the site investigation conducted in 2018 (described on pg. WI-117) to be a complete site investigation as required under Chapter NR 716 Wis. Adm. Code. The discussion of that investigation should clarify that because it was limited to the nine PRLs identified in 2015, the extent and nature of PFAS contamination at the 115 FW has not been fully determined. Results of the 2018 site investigation indicate that there is a likelihood of PFAS contamination of soil and groundwater across much of the installation. Consequently, all planned construction projects will require a site investigation to determine whether PFAS contamination is present prior to construction. A waste handling plan, and potentially permits, will also be required for any soil or water that contains PFAS or other contamination that will be generated at the site due to construction or other like activities."

On page WI-120, the dEIS states that "media management plans are recommended for any area where soil or groundwater disturbance is expected to occur and site investigations indicate PFAS contamination above federal and/or state regulatory limits." There are currently no state or federal standards for PFAS. As such, the statement quoted above suggests that media management plans would never be recommended. Section NR 722.09, Wis. Adm. Code, however, requires a responsible party to establish site-specific cleanup standards in the absence of promulgated, numeric standards. These standards must be established with approval from the DNR, in consultation with the state Department of Health Services. Furthermore, ch. 292, Wis. Stats. requires a response action whenever a hazardous substance discharge or environmental contamination is detected in any media."

The September 10, 2019 City of Madison staff analysis (linked above) also stated that "The Department of Defense and the Air National Guard cannot safely and legally perform the planned construction activities without a complete site investigation that defines the extent and nature of PFAs contamination in soil and groundwater." Madison Water Utility and Madison Sustainability Committee resolutions on the F-35 placement at Truax Field echoed this statement. Mayor Rhodes-Conway's Nov. 1 2019 statement also repeats this.

The DEIS makes no mention of PFAS exposures to military and civilian personnel at the Truax ANG base. Per CfR §989.27 (occupational health & safety), the EIS should consider PFAS exposures to base personnel as they work on the base and/or address fires and crashes related to jet and base operations. Considerations should include the potential for vapor intrusion on the base (new studies suggest that some PFAS can volatilize).

People are also potentially exposed to PFAS off base-- in businesses, Madison Area Technical College, and the Truax apartments and homes near the base. Until recently they were exposed via their drinking water (Well 15), contaminated by PFAS from firefighting foams at the base. This exposure went on for decades. Turning off Well 15 has not stopped exposures, however, since people near the base could be exposed via air, runoff into adjacent creeks and streams, and potentially vapors from underground PFAS plumes emanating from the base.

3. Hazardous chemicals other than PFAS

MEJO request for revised EIS: The EIS should include lists of: a) A complete list of all the chemicals, solvents, lubricants, etc. required for F-16 and F-35 maintenance and operations. b) A full delineation of the vertical and lateral extents of the groundwater VOC contamination currently at the site and how far it has traveled offsite in all directions. c) Complete testing for chemicals used and/or released on the site that have not been assessed or inadequately tested to date, including: TCE, PCE, PAHs, PCBs, metals, PFOA/PFAS, radioactive compounds. d) Evaluation of how the chemicals used/spilled/released at the site (including those in "c" above) migrated (via ditches, storm drains, utilities, sewers, etc.) and how they could affect humans, waterways, wildlife and other receptors. e) c) Per CfR §989.27, comprehensively assess potential health and safety effects of chemicals used on the base to personnel—including vapor intrusion of petroleum compounds and VOCs. f. VOC vapor intrusion assessments in adjacent buildings off base. (Many of the above are required by Wisconsin NR 700 laws, but were not adhered to at the Truax ANG base).

BACKGROUND for requests per #3

Beyond PFAS contamination, the DEIS also doesn't comprehensively characterize other hazardous chemicals used at the base now and/or required for F-35A operations and maintenance, making it impossible to adhere to CfR §989.31 and CfR §989.27 (occupational safety and health of military personnel). The DEIS also makes unsupported and/or contradictory claims pertaining to hazardous wastes and vague assurances for how they will be managed appropriately. In many places it cites old studies or its own previous reports.

For instance, the DEIS makes the claim that "The number of hazardous waste streams generated by F-35A operations would be expected to be less than those being generated by the existing F-16 aircraft because operations involving hydrazine, cadmium and hexavalent chromium primer, and various heavy metals have been eliminated or greatly reduced for the F-35A (Luker 2009; Fetter 2008). As with hazardous materials, the waste streams that are targeted for omission or substitution as aircraft are transitioned to the F-35A would be expected to decrease over the amount currently generated in support of F-16 aircraft operations." (WI-117, 118)

However, contradicting this, the DEIS also says "the total number of aircraft operations for the 115 FW would increase approximately 47 percent; therefore, *hazardous waste generation would be expected to increase commensurately*" and later says "The increase in airfield operations *would increase the throughput of petroleum substances (e.g., fuels, oils) used during F-35A operations*. In addition to the increased amount of fuel usage associated with increased aircraft operations, a short-term *increase of fuels used during construction activities* (e.g., diesel, gasoline) would be expected to fuel earth-moving equipment and power tools and provide electricity and lighting." (highlights added) (WI-117, 118)

The DEIS claims, with vague and unsupported statements, that these increases in hazardous waste generation will be completely under control, with no releases to the environment. It refers to an "Oil and Hazardous Substances Spill Prevention and Response Plan" with "specific protocols for preventing and responding to releases, accidents, and spills involving oils and hazardous materials" (citing 2011 115th FW). It claims that "The 115 FW Hazardous Waste Management Plan outlines procedures for controlling and managing hazardous wastes from the point where they are generated until they are disposed" and "includes guidance for compliance with all federal, state, and local regulations pertaining to hazardous waste" and "a section detailing pollution prevention at the installation with the goal of reducing or eliminating the use of toxic or hazardous substances and the

generation of hazardous waste wherever possible through source reduction and environmentally sound recycling" (citing 115 FW 2017d). (WI 119, 120)

Claims that "procedures for hazardous material management" will continue to be followed in future operations are not reassuring, given that significant amounts of PFAS and a plethora of other toxic chemicals have been documented on and off the base for decades. Clearly, existing procedures and regulations have not been adequate to control the discharges of these chemicals into the environment. As the Wisconsin DNR noted in its October 30 letter, in the case of PFAS, some significant state laws cannot be adhered to without a comprehensive site investigation.

Also, without comprehensive and specific details about all the chemicals used at the base now (what kinds, levels, where/how are they used)—and what kinds of chemicals are required for the F-35A operations--these claims cannot be substantiated. The DEIS says the 115th uses "paints, oils, lubricants, hydrazine, sealants, solvents, batteries, and fuels (i.e., gasoline, diesel, and jet)" It mentions ten aboveground storage tanks but doesn't say what chemicals or other substances are stored in them. (WI 112).

Vague categories like "solvents" and "sealants" do not help to assess, manage, and/or control environmental health and safety risks at the base to personnel and the environment, nor do they help assess what might end up being discharged from the base in storm and sanitary sewers. What precisely are these chemicals? What chemicals are in the 10 aboveground storage tanks--which can leak—and have done so many times at the base?

Finally, vapor intrusion of volatile organic compounds such as PCE and TCE has never been assessed at the site as required by NR 716. Though the DEIS says it will be done if contaminant investigations indicate vapor problems. This is good and necessary to protect base personnel, and we hope that the DNR ensures that this is in fact done. However, it is very likely that the VOC plume traveled off base and therefore vapor intrusion assessments should also be done in buildings adjacent to the base, including businesses, MATC, and especially apartments near the base like the Truax apartments.

4. Stormwater discharges of PFAS and other toxic contaminants to Starkweather Creek

MEJO request for revised EIS: a. Comprehensive assessment of how contaminated stormwater runoff from the ANG site has already affected water, sediments, fish, wildlife etc. in Starkweather Creek (needed as baseline to assess point b); b. Complete assessment of how F-35 operations and maintenance, new facilities constructed for the F-35s, and potential F-35 crashes could affect Starkweather Creek (water, sediments, fish, and other wildlife) via stormwater runoff and other emissions (including air emissions); c. Thorough description of how stormwater runoff and other toxic pollution from the ANG base into Starkweather Creek and nearby wetlands will be prevented.

BACKGROUND for requests per #4

Again, according to Title 32 Code of Federal Regulations (989.31 Pollution prevention), per the Pollution Prevention Act of 1990, 42 U.S.C. 13101(b), the Draft EIS "should analyze potential pollution that may result from the proposed action and alternatives and must discuss potential pollution prevention measures when such measures are feasible for incorporation into the proposal or alternatives."

The DEIS fails to adequately analyze (or assess at all) effects of stormwater discharges of PFAS and other toxic contaminants used and released on the Truax base into Starkweather Creek, a highly impaired 303(d) listed waterway that surrounds the Air National Guard site on three sides. All stormwater runoff from the site discharges to the creek, which then flows to Lake Monona (also a highly impaired 303(d) listed waterway) about 2.5 miles south. The airport and WANG base were built on drained wetlands, and many ditches and culverts were built to drain the base's stormwater runoff to the west branch of the creek to prevent flooding.

In summer 2019, significant levels of PFAS were found in the west branch of Starkweather Creek (downstream of Truax Field) and in water along its entire length. MEJO's 2019 Starkweather report describes how the section of the creek downstream of the base has been shown to be the most toxic part of the creek and what is known/not known about other toxic chemicals affecting the creek.

Construction on the base to prepare for the F-35s will cause further runoff of contaminated sediments into the creek. The DEIS says "Under the Proposed Action, there would be up to 212,883 SF (4.9 acres) of temporary soil disturbance, including up to 71,883 SF (1.7 acres) of new impervious surface as a result of proposed construction." However, it assures that "The proposed construction activities *could temporarily impact the quality of stormwater runoff*" but because of stormwater management controls "impacts to the existing stormwater drainage system as a result of the proposed construction *would be minimal*." (highlights added) (pg. WI-92, WI-133-135)

These assurances are completely baseless and fly in the face of abundant evidence to the contrary. Firstly, this total of 6.6 acres far underestimates the impacts of the construction planned for the F-35s. If the construction projects described in the Environmental Assessment are included the total soil disturbance is over 32 acres. (Even though later the DEIS mentions the much larger impact of the EA projects, in most places where it is assessing critical impacts it only mentions the 6.6 acres of disturbance for the projects described in the F-35 EIS. This is highly problematic).

While the City of Madison and DNR refer only to PFAS contamination on the base that will be disturbed during construction, and then released in stormwater runoff, many other contaminants in soils and groundwater at the base will also be disturbed. The DEIS minimally mentions only a few of these and does not discuss the potential for their release during site construction at all.

The DEIS mentions the nine potentially contaminated "Environmental Restoration Program" (ERP) sites at the 115 FW installation, investigated from 1988 to the present. Though all nine sites were recommended by DNR for "no further action (NFA) with site closure," many of these sites have remaining residual toxic contamination. Six of the nine sites are located in areas of planned construction to support the proposed F-35A operations, according to the DEIS.

Petroleum compounds, lubricants, solvents, de-icing chemicals, metals, and many other chemicals required for jet maintenance and operations have already made their way via spills, leaks, and stormwater discharges into soils and groundwater at the base (and well beyond it). Though some contaminated areas at the site have been remediated partially, remediation was not comprehensive and many areas were left to "natural attenuation" (doing nothing). Many of DNR's NR 700 laws were not followed for these areas or at the site overall. For instance, the vertical and horizontal extents of the VOC groundwater contamination beneath the site, and its extent offsite, were never fully delineated, violating NR 716.

Further, many toxic chemicals known to be used and/or released at the site were inadequately assessed in soils and groundwater, or not measured at all. In addition to inadequate assessment of

PFAS contamination at the base, the solvents tetrachloroethylene (PCE) and trichloroethylene (TCE), as well as polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), radioactive compounds, and other toxic chemicals very likely to be present in the soils and groundwater at the site were minimally assessed or not assessed at all. The base still uses solvents (probably including TCE) as well as lubricants, but they are not identified in the DEIS.

The DEIS says "The protection of surface and groundwater sources during ground disturbing activities, changes to stormwater control systems, and disturbance of areas located within the 100-year floodplains *were considered when evaluating potential impacts to water resources*. Water resources would be adversely impacted if there were significant unmitigated impacts to wetlands, significant modification of the floodplain, *uncontrolled erosion and sedimentation due to stormwater runoff*, or *pollution discharged into impaired water bodies to exceed Total Maximum Daily Loads.* (pg. 3-40)(highlights added).

Notably, however, the DEIS does not consider toxic chemicals discharged in this definition of "impacts to water resources"—though toxic chemicals will be discharged along with sediments during construction. This seems to be a deliberate choice to avoid consideration of these impacts.

The DEIS claims not only that its permits will "*address and mitigate any of these impacts to water resource*s," it claims that its 2016 Stormwater Pollution Prevention Plan will "provide a management and engineering strategy specific to the 115 FW installation" and actually "*improve the quality of stormwater runoff* and thereby *improve the quality of receiving waters*." (WI-92-94)

It claims that the NPDES program provides a framework for regulating municipal and industrial discharges to ensure compliance with the Clean Water Act. The site-specific SWPPP would include measures to minimize potential impacts associated with stormwater runoff during construction, including BMPs and standard erosion control measures and "Special consideration would be made to implement these measures for any construction adjacent to Starkweather Creek, which is on the State list of waterbodies that are impaired for sediment.(WDNR 2018)." (WI-94)

It admits that "although there would be a small increase in runoff volumes and rates associated with the additional impervious areas under this alternative, the stormwater management system would be designed in compliance with applicable stormwater regulations. In addition, the airport is currently in compliance with its WPDES permit and proposed facility designs would follow the WPDES permit conditions such that *no adverse impacts to water quality would result*." In conclusion, the DEIS states, "Implementation of these measures, as necessary and appropriate, would ensure that *impacts to surface and groundwater water under the Proposed Action would not be significant*." (WI-93-94).

These assurances fly in the face of abundant evidence. The September 10 City of Madison and October 30 DNR letters clearly state that construction cannot safely and legally begin without a full assessment of PFAS at the base and offsite and also list inaccurate statements about the pertinent permits involved.

Further, pointing to WPDES permits and SWPPPs as being adequate to protect discharge of contaminants into Starkweather Creek is not reassuring. Clearly permit-based controls failed to prevent past toxic discharges to Starkweather Creek. Our 2019 Starkweather Creek report and summer 2019 findings of PFAS all along the creek (link to reports above) illustrate this clearly.

The existing ANG stormwater permit (the base is a co-permittee with the Dane County Regional Airport or DCRA) requires only sporadic and limited testing of stormwater releases from the ANG

base. Very few chemicals are assessed and the permit doesn't require any testing of stormwater released from the base directly into the creek. The most toxic chemicals known or likely to be at the site (chlorinated solvents, metals, radioactive materials, and more) have not been assessed in stormwater discharged from the site and there are no plans to add them to the permit.

The 2016 SWPPP for the Air National Guard base (required under the DCRA permit) is now significantly out of date and failed to prevent (or even identify) the PFAS contamination at the base. PFAS has not been assessed under the DCRA permit, though it will be added in the next round of permitting. In testing required by DNR for the next permit, PFAS was found in spring/summer 2019 at high levels—and the stormwater outfall at the airport where the highest levels were found receives stormwater directly from the Truax base right where over 46,000 ppt of ten PFAS compounds were found in shallow soils and groundwater.

Finally, the DEIS does not consider the significant toxic chemical releases into Starkweather Creek that would occur if a F-35 jet crashes and burns near the creek, especially if firefighting foams and other chemicals are used to extinguish the fires (which can go on for very long periods of time; see below section). In such a scenario, fire fighters would have to spray large volumes of fire-fighting chemicals onto the plane and soils that would run off uncontrolled into the creek. Burning planes emit a plethora of toxic chemicals into the air and onto the ground in addition to the firefighting chemicals. Given that the creek is along the fighter jet takeoff and landing pathways, where crashes are most likely to occur, these potential toxic releases into Starkweather Creek should be considered in the EIS.

5. Effects on wildlife, public space and Cherokee Marsh

MEJO requests for revised EIS: The EIS should include: a) thorough and scientifically up-to-date analyses of the noise impacts to wildlife at/near the base and at Cherokee Marsh, along Starkweather Creek, etc.; b) thorough and scientifically up-to-date analyses of the impacts of jet noise, operations, and potential crashes (and toxic chemical releases) on Cherokee Marsh wetlands and wildlife; c) Analyses of the negative social, cultural, aesthetic and other impacts resulting from the decreased use of Cherokee Marsh for recreation, hiking, quiet space, educational purposes due to noise impacts.

BACKGROUND for requests per #5

a. Wildlife

The DEIS makes the claim that "the majority of the wildlife present at the airport and the 115 FW installation consists of species that are highly adapted to developed and disturbed areas."

It admits that that "Noise associated with construction may cause wildlife to temporarily avoid the area, including those that are protected under the Migratory Bird Treaty Act (MBTA). Noise associated with construction activities, as well as an increase in general industrial activity and human presence, could evoke reactions in birds. Disturbed nests in the immediate vicinity of construction activity would be susceptible to abandonment and depredation."

Nevertheless, the DEIS concludes that "bird and wildlife populations in the vicinity of the airport where project components would occur are accustomed to elevated noise associated with aircraft and general military industrial use. It also concludes that wildlife "tend to habituate to sonic booms and long-term effects are not adverse. Impacts to federally-listed species would not be significant."

We agree with the Wisconsin DNR's October 30 letter stating that "The dEIS provides little substantive information on the potential impacts of increased aircraft noise on wildlife (pg. WI-100) or threatened, endangered, and special status species (pg. WI-101) and "it is likely that there would be some level of impact on a variety of species."

As DNR's GIS analysis found, "approximately 550 acres of preserved marshland and adjacent uplands would be exposed to increased noise levels ranging from 65-75 dB DNL. This area is part of a wetland complex that includes diverse habitat and ecological community types that have been determined to be rare and declining in Wisconsin. These include calcareous fen, southern sedge meadow, wet prairie, and wet-mesic prairie. Numerous species of common mammals (raccoon, opossum, and meadow vole), amphibians (common frog species and American toad), and birds use the affected area, including species of greatest conservation need identified by the state's Wildlife Action Plan (Bald Eagle, Short-eared Owl, Bobolink, American Woodcock, and Willow Flycatcher) and a state-threatened bird."

We further agree with DNR that "In addition to including the above information, the dEIS would be improved by including a summary of findings reported by Shannon et al. (2016): "A synthesis of two decades of research documenting the effects of noise on wildlife" (pp. 982-1005 in *Biological Review*, volume 91). Specifically, the authors analyzed the results of sixty-nine peer-reviewed, empirical studies of noise effects on terrestrial wildlife (published since 1990) and found that 65% of these studies reported at least some degree of biological response (behavior, physiological, population, etc.) at noise levels of 65 dB, while 80% reported responses at 75 dB."

b. Public space & Cherokee Marsh

The DEIS says that "total annual airfield operations at the Dane County Regional Airport are proposed to increase by 2,290 operations (3 percent). In addition, an additional 1,320 acres of land off the airport property would be exposed to DNL greater than 65 dB. The majority of this area is agricultural lands." Again, it notes that "Changes in operational noise are not expected to impact terrestrial species in the area because species on and near the installation are likely accustomed to elevated noise levels associated with aircraft and military operations." An increase in airfield operations may result in a slight increased opportunity for bird/wildlife aircraft strikes to occur, including those with migratory birds. Adherence to the existing BASH program would minimize the risk of bird/wildlife aircraft strikes (see Section WI3.4, *Safety*).

DNR disputes that "the majority of this area is agricultural lands," stating that: "According to the dEIS, F-35A aircraft operations at the 115 FW would increase the area of land falling within the 65-plus dB DNL noise contour by 1,320 acres. Table WI3.5-2 (pg. WI-69) incorrectly reports that 768 acres (or 58%) of this additionally-impacted land is agricultural with only 17 acres (or 1%) in parks and open space.

In fact, most of the area northwest of the airport represented as "Agriculture" in Figure WI3.5-2 (pg. WI-70) is part of Cherokee Marsh, a 2,000-acre area owned and managed for nature conservation and outdoor recreation by the State of Wisconsin (DNR), City of Madison, and Dane County. Based on a GIS analysis conducted by the Wisconsin DNR, approximately 550 acres (or 42%) of the land that would be added to the 65-plus dB DNL zone lies within the boundaries of three protected areas, including 286 acres of the Cherokee Marsh State Fishery Area, 121 acres of the City of Madison's Cherokee Marsh North Unit, and 143 acres of the Cherokee Marsh State

Natural Area (SNA). Of the affected area within the SNA, 107 acres (75%) would experience a larger increase, from the current range of 60-65 dB to a projected range of 70-75 dB."

Cherokee Marsh is also highly vulnerable to F-35 crashes, and the negative environmental consequences of these crashes (releases of toxic chemicals, etc) (see more below).

In sum, the F-35s will affect public spaces in Cherokee Marsh, causing a myriad of negative effects on birds and wildlife. Cherokee Marsh is also a cherished place for many people to walk, hike, cross-country ski, observe birds and wildlife, canoe/kayak, and for taking their children to see wildlife. Many teachers at public schools and other educational center take children to this marsh on field trips to learn about wetlands, wildlife, plants, etc. Increased noise and disruptions in this beautiful public place from the F-35 jets will negatively impact (and possibly prevent) these enjoyable, healthy, and educational activities--decreasing physical and psychological health and well-being.

6. Crashes/fires & weapons

MEJO requests for revised EIS. The EIS should include: a. Full assessment of which Madison residents and environmental resources (land, water, wildlife, wetlands, etc.) would be most at risk for a crash and the nature of the consequences to people and the environment. b. Complete assessment of all chemicals, fuels, and other toxic materials that could be released if an F-35 crashes and burns, and the environmental and public health effects of these releases (including those related to the burning of the F-35's composite materials and stealth coatings). c. Full analysis of all of the kinds of munitions/weapons that will be carried on these planes (including nuclear munitions) and what would be released from these munitions if the planes crash and/or burn and the environmental and public health effects caused by these releases. d. Assessment of whether/how these munitions burn during/after a jet fire or crash, how long might they burn and what chemicals are required to extinguish them; e) Full assessment of the preparedness of local fire departments to deal with a crash of an F-35 at or near the base, into a residential area, or into Madison lakes. f. Full assessment of how the health and safety of Air Force personnel will be protected in the case of F-35 crashes, explosions, burning, etc.—and responses to these incidents.

BACKGROUND for requests per #6

a. Crashes/fires

The DEIS analysis of the potential for crashes is inadequate and not reassuring. Given that the low income neighborhoods with high proportions of people of color near the base are most vulnerable to F-35 crashes, accurately assessing the potential for crashes to these neighborhoods (resulting in injury, illness, and deaths, as well as negative environmental and psychological effects) should be part of the EIS analyses, including the environmental justice analyses, as mentioned above.

Since the 1950s, there have been over 20 crashes of military planes from Truax base in or near Madison and surrounding areas. Many of these crashes killed jet pilots and some killed or injured civilians. Several jets crashed into the lakes and released fuel and other chemicals into them. These crashes are clearly risks to the environment and the community, especially to people living very close to the base, where the jets take off and land and the risk of crashes is highest. As described above, there are several low income neighborhoods close to the base or under the landing/takeoff routes that are most vulnerable to potential crashes. According to analyses we have seen, the F-35s are predicted to crash at a higher rate than the F-16s, especially during their early years of operation.

The DEIS downplays the risks of crashes, but also says that "the F-35A is considered to be more vulnerable to a catastrophic wildlife strike due to the Electro-Optical Targeting System (EOTS) Window Assembly than the legacy aircraft. Damage to the EOTS due to a wildlife strike could damage the engine, which could result in the catastrophic loss of the aircraft."

F35 and other high-tech military jet crashes also pose significant environmental and public health risks beyond killing people from the crash itself—especially if the crash creates a fire. According to the 2015 Air Force Research Laboratory's *Composite Material Hazard Assessment at Crash Sites* (called "Composite Material" report hereafter): "Aircraft crash sites have numerous potential hazards. The types of hazards vary depending on the type of aircraft, whether or not casualties were involved, type of cargo, whether or not fire was involved, etc. If a fire was involved, more toxic substances will be created and released than a crash not involving a fire….

The Composite Material report delineates specific compounds that could be released by burning composite materials. "Potential contaminants/hazards include the following: jet fuel, unexploded ordnance, isocyanates, blood-borne pathogens, radioactive material, plastics, polymers composed of organic material, and composite fibers. Aircraft structural alloys include, but are not limited to, beryllium, aluminum, zinc, hydrazine (F-16), magnesium, titanium, and copper released in the form of metallic oxides, which pose an inhalation hazard to unprotected responders. Potential exposure to the civilian population depends upon their proximity to the crash site…"'

As the quote above highlights, the materials that the F-35s are composed of can be released at the crash site, especially if the plane burns. The "advanced composite materials" used in F-35s, in particular, pose heightened risks in a crash that results in a fire. According to the Composite Materials report, the F-35 will include 42% advanced composites (compared to 13% composites in the F-16s) that will include carbon fibers in the micron and nano-sized ranges. Numerous scientific studies have shown that carbon fibers in this size range, when inhaled, can have health effects similar to asbestos.

Several other toxic chemical byproducts can be generated when these composites burn, as described in the Composite Material report: "During an aircraft accident/mishap it is important to know that transformative processes take place and chemical byproducts are formed. The transformative process may create toxic materials that were not part of the original manufacture of the advanced composite. Chemical extraction analysis indicates a significant number of toxic substances are adsorbed on the fibers, several of which are known carcinogens." The report concludes: "Some aircraft should automatically be in the high-risk category due to the high percentage or large quantity of composite materials within the airframe. For example, the B-2, F-22, AV-8B, **and F-35** would be in this category."

Further, in addition to advanced composite materials, F-35s will have a stealth coating made of "advanced aerospace materials" that F-16s do not have. According to the 1995 U.S. Air Force report, "Mishap Risk Control for Advanced Aerospace/Composite Materials" (hereafter called the "Mishap" report), advanced aerospace materials" can include "Radar Absorbent Material (RAM), Beryllium, Depleted Uranium" (radioactive materials). The report notes that "Although advanced composite/aerospace materials represent only one of the many hazards associated with an aerospace mishap (fuel, weapons, metals), they do merit increased awareness because of their hazard potential and persistence. Exposures to the potentially harmful vapors, gases, composite particulates, and

airborne fibers generated in a composite mishap need to be controlled because of the symbiotic effect of the dispersion forces and complex chemical mixtures."

The "Mishap" report states that "potential health and environmental effects from damaged advanced composites include dermal and respiratory problems, toxic products, contamination, and, in the case of advanced aerospace materials, **radiation**…. Off-gassing, toxic products in the smoke plume, smoldering debris, and airborne fire-damaged particulates are the primary respiratory hazards. Examples of combustion products include: Hydrogen cyanide, sulfur and silicon dioxide, formaldehyde, hydrogen fluoride, ammonia, hydrochloric acid, hydrogen sulfide, isocyanates, halogenated compounds and aromatics."

Another critical concern is the amount of time it takes to extinguish burning advanced composite materials and the preparedness of fire departments and fire fighters. The Composite Materials report includes a detailed description (and video) of what happened in 2008 when a military plane with advanced composite materials crashed and burned. Debris from the crash covered nearly 19,000 square meters. The debris burned and smoldered for nearly three days. Analyzing the crash, the report concluded that "[a]aircraft composite fires differ from metal aircraft fires because they add fuel to the fire by increasing the fuel load... Fires involving thick composite fires will require extensive time to extinguish." The analysis of the incident concluded that local fire departments were overwhelmed by and unprepared for the incident, and concluded that firefighting units need to "develop new tactics and firefighting strategies specific to composite aircraft fires" and "start training to address this new type of fire threat…"

b. Weapons

If planes crash, the weapons carried by the planes can explode and/or release toxic materials from the munitions into the environment, posing risks to wildlife, soils, groundwater, surface water, and public health and safety.

The DEIS says: "the F-35A (like the F-16) is capable of carrying and employing several types of air-to-air and air-to-ground ordnance (including strafing) and pilots would need training in their use." Even if the F-35A pilots would only use these munitions in approved locations, planes would have to fly with these weapons on board in various contexts including near the Truax base. Ordnance mentioned in the document include 2,000-pound Guided Bomb Unit (GBU), Joint Direct Attack Munitions (JDAM) for air-to-ground ordnance delivery, Aircraft Gun Unit (GAU) 22/A cannon, and strafing. A thorough analysis of the environmental risk and safety impacts of the weapons carried by the F-35A to our community is not possible without more detailed information about the weapons carried by these planes. (pg. WI-56)

F-35s are capable of carrying nuclear weapons, and nuclear weapons have been carried by fighter planes at Truax in the past (as well as stored at the base and also likely at the nearby Armory—next to the low income Truax apartments). If F-35s will carry nuclear weapons, crashes could release radioactive materials into the environment, exposing people and ecosystems and contaminating ecosystems irreversibly.

Last but not least, regarding the above, the DEIS should consider the effects on health and safety of Air Force personnel who will respond F-35 crashes, per CfR §989.27.

7. Cumulative effects

MEJO request for revised EIS: The revised EIS should comprehensively analyze and provide more scientific support for all of the cumulative impacts they outline (and mostly dismiss), but especially a) the disturbance of about 33 acres of soils from construction (from both the EA and the EIS projects); b) effects of ongoing, continuous contaminated stormwater runoff into Starkweather Creek and Lake Monona, added to previous discharges; c**) All of the proposed cumulative impacts combined, which people, wildlife, and the environment at and near the base are exposed at once over the short and long-term.**

BACKGROUND on requests per #7

"According to CEQ regulations, the cumulative effects analysis of an EIS should consider the potential environmental impacts resulting from "the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions" (40 CFR 1508.7).

The cumulative analyses in the DEIS are highly inadequate--largely qualitative and very vague. Most claims of no significant impact are speculative with little/no supporting evidence. The document claims that there will no significant cumulative impacts regarding air quality, socioeconomics, floodplains, wetlands, wildlife, or cultural/archeological resources. It admits to a few significant cumulative impacts: noise, environmental justice, land use. But for most impacts, it suggests there might be an impact but then makes a simple, general claim that it will be managed/mitigated somehow (usually by claiming it will follow permit requirements, best management practices) and therefore there will be no significant impact.

The DEIS admits that the full cumulative impact of the construction for the F-35As will involve not just the total acreage disturbed by the F-35A beddown (up to 212,883 SF (4.9 acres) of temporary soil disturbance and up to 71,883 SF (1.7 acres) of new impervious surface" but also will include the new construction already approved under the earlier Environmental Assessment approved in spring 2019: up to 1,094,330 SF (25.1 acres) of new construction footprint, including up to 50,600 SF (1.2 acres) of new impervious surfaces.(WI-133) This is a combined total of 32.9 total acres of soil disturbance for new construction. Again, significant cumulative effects on "earth resources" from this large area of disruption are dismissed simply by saying NPDES permits will be followed, standard construction practices will be used to limit or eliminate soil movement, erosion, and sedimentation.

Cumulative effects on water resources from disrupting almost 33 acres of land are also deemed inconsequential by saying that the 115 FW would follow permit requirements. As for potential effects on groundwater, the DEIS admits that "Although fuel or other chemicals could be spilled during construction, demolition, and renovation activities, implementation of the required Spill Prevention Control and Countermeasures Plan and immediate cleanup of any spills would prevent any infiltration into groundwater resources. Therefore, cumulative impacts to groundwater resources would not be significant."

Regarding stormwater, the DEIS admits that construction projects "when considered with present and reasonably foreseeable projects, could result in a temporary, cumulative increase in surface water turbidity" but that "best management practices" in the Stormwater Pollution Prevention Plan "are

designed to minimize these impacts" and that "All other present and foreseeable projects would be required to follow the same state and federal guidelines for construction permitting to ensure water quality was protected from possible erosion and sedimentation. In sum, cumulative impacts to stormwater would not be significant." (WI-134)

On safety, the DEIS admits that "At publication of this EIS, there have not been enough flight hours to accurately depict the specific safety record for the F-35," (pg. 135) but then notes that "The fire and crash response capability currently provided by the 115 FW installation is sufficient to meet all requirements…." so therefore "Cumulative impacts to ground or flight safety would be negligible at the airfield." (WI-131)

As for effects on "infrastructure," the DEIS says "the Proposed Action and other projects would increase demand for potable water, increase production of wastewater, and create more impervious surfaces to increase stormwater runoff. However, cumulative effects are anticipated to be minimal because there is current and long-term capacity to meet increased demand for drinking water and disposal of wastewater. For stormwater, BMPs such as silt fencing, vegetation management, and ditching would minimize erosion and sedimentation during the short-term construction phases; retention and detention pond systems would avoid excessive runoff due to increases in impervious surfaces in the long term." (WI-132, 134) These vague assurances ignore the fact that even the best stormwater management practices, which usually do not occur in practice, fail to prevent stormwater discharges into nearby surface water.

The DEIS notes that "it is anticipated that there would be both short- and long-term increases in solid waste generation" but assures that **"**During demolition and construction phases, all materials would be disposed in permitted facilities, which have the capacity to accept these materials. In the long term, solid waste generated by the regionally minor increase in personnel could be handled by existing solid waste management systems." These assurances ignore the fact that many of the materials needing to be disposed of will be contaminated with PFAS and other toxic chemicals that may not be able to be "handled by exiting solid waste management systems." Regarding petroleum substances and hazardous waste streams, the DEIS notes that "throughput of petroleum substances and hazardous waste streams would be expected to increase" but simply assures that they would be properly managed and therefore cumulative impacts would not be significant. (WI-136)

Finally, people, wildlife, and the environment at and near Truax Field will be exposed over the short- and long-term to nearly all of the above effects at once, day after day. An accurate scientific assessment of "cumulative impacts" would consider all of these negative impacts together. They are often additive and/or synergistic and so assessing one at a time does not reflect the actual risks to people's health, safety and well-being—nor does this approach accurately assess actual impacts to wildlife and the environment over time.

8. Unavoidable Impacts

MEJO request for revised EIS: The DEIS should articulate what kinds of "unavoidable impacts" might occur with the F-35 A beddown. What does "certain" mean here? Which "F-35A beddown activities" are "projected to result in disturbance and/or noise within areas not previously or recently subjected to these effects"?

BACKGROUND for requests per #8

The DEIS includes a small section in the early part of the document called "unavoidable impacts." It states only that: "Certain F-35A beddown activities are projected to result in disturbance and/or noise within areas not previously or recently subjected to these effects. Some of these noise effects could be considered adverse or annoying to potentially affected individuals." (pg. 2-44)

This odd section on "unavoidable impacts" seems to be a cover for a wide range of negative impacts that could result from the F-35s that the DEIS doesn't discuss. We found no further discussion of "unavoidable impacts" elsewhere in the document.

Potential "unavoidable impacts" should be discussed in the EIS.

April 6, 2018

Ms. Christel Johnson,
Environmental Engineer, NGB/A
4AM Shepperd Hall
3501 Fetchet Avenue
Joint Base Andrews, MD 20762 – 5157

Dear Ms. Johnson:

The Midwest Environmental Justice Organization is a 501c3 organization that works collectively with citizens to identify and understand health and environmental effects of toxic pollution in our community, and organizes with them to try to reduce and eliminate this pollution.

MEJO's comments for the Draft Environmental Impact Statement (EIS) being prepared by the Air National Guard regarding the potential beddown of F-35A aircraft at the Wisconsin Air National Guard (WANG) base at Madison's Truax Field are enclosed.

In sum, we ask that the following issues be addressed in the Draft EIS:

1. Environmental justice
2. Soil, groundwater, and vapor contamination resulting from F-16s and F-35s
3. Impacts of stormwater runoff from Truax WANG on Starkweather Creek
4. Environmental, health, safety consequences of F-35 crashes
5. Emergency Planning Community Right-to-Know (EPCRA)
6. Noise impacts on health & environment
7. Air emission impacts on health & environment
8. Native American mounds and artifacts on or near the WANG base
9. Effects of the above on adjacent wetlands and wildlife
10. Flooding/climate change effects

Thank you for considering these issues in the Draft Environmental Impact Statement.

Sincerely,

/s/Maria Powell, PhD
President, Midwest Environmental Justice Organization
1311 Lake View Ave., Madison WI 53704
608-240-1485, mariapowell@mejo.us, mejo.us

Background and specific questions to be addressed in Draft EIS:

1. Environmental justice
The placement of F-35s at Madison's Truax Wisconsin Air National Guard (WANG) base raises significant environmental justice issues that should be fully evaluated in the EIS process. Low income people living at the Truax apartments (about ½ mile southeast of the base), including a large percentage of people of color, will be disproportionately exposed to the noise and other pollution emitted from F-35s during their ongoing operations at Truax WANG and during jet landings and takeoffs. Given their proximity to the site, Truax residents are more at risk from jet crashes during takeoff and landing than people living further from the site. Starkweather Creek, which flows right next to the neighborhood, receives all the runoff from the base and is contaminated with chemicals from stormwater runoff from it (see below). The Darbo Worthington neighborhood about a bit over a mile south of the base, with a high proportion of low income minorities, is right under a frequent landing path for the fighter jets. Starkweather Creek also flows through this neighborhood. Low income and minority subsistence anglers, including some from these neighborhoods, eat fish from this creek downstream of the site along the creek and where it discharges to Lake Monona. People living at the trailer park (Oak Park Terrace) about 1/2 mile west of the ANG site, and low-income apartments just west of that (Tennyson), will also be disproportionately affected by the noise, air pollution, and other pollution from these jets.

The Truax, Darbo Worthington, Tennyson and Oak Park Terrace neighborhoods are already exposed to a number of environmental health risks and score very high on the EPA EJSCREEN indices. Locating supersonic F-35s at Truax WANG will further add to these risks.

According to the Title 32 (National Defense) Code of Federal Regulations (CfR) §989.33 (Environmental justice): "During the preparation of environmental analyses…the EPF should ensure compliance with the provisions of E.O. 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, and Executive Memorandum of February 11, 1994, regarding E.O. 12898. Further, CfR PART 989—Environmental Impact Analysis Process (EIAP) states that during the Draft EIS process, "Where analyses indicate that a proposed action will potentially have disproportionately high and adverse human health or environmental effects on minority populations or low-income populations, *the EPF should make special efforts to ensure that these potentially impacted populations are brought into the review process*."

The following multi-agency document describes in detail current, state-of-the-art approaches in evaluating disproportionately impacted communities *along with strategies on how to effectively outreach to and meaningfully engage them*: Promising Practices for EJ Methodologies in NEPA Reviews.

The Draft EIS should include:
a. A comprehensive evaluation of the potential health effects of the noise, air, stormwater, potential crashes, and all other types of pollution created by the F-35s on the low income and minority communities living very near the WANG base and/or under its landing/take off routes (see points below).
b. Description of how the Air National Guard will outreach to and meaningfully engage people in low income neighborhoods most affected by the placement of F-35s in the Draft EIS review and public comment process (per the "Promising Practices" guidance linked to above).

2. Soil, groundwater, and vapor contamination resulting from F-16s and F-35s
Petroleum compounds, lubricants, solvents, de-icing chemicals, metals, and many other chemicals required for jet maintenance and operations have already made their way via spills, leaks, and stormwater discharges into soils and groundwater at the Truax Air National Guard base (and likely well beyond it). Though some

contaminated areas at the site have been remediated partially, remediation was not comprehensive and many areas were left to "natural attenuation" (doing nothing). Though the Wisconsin Department of Natural Resources approved closure and "no further action" for the eight identified contaminated areas in 2012, many of DNR's NR 700 laws were not followed for these areas or at the site overall. For instance, the vertical and horizontal extents of the groundwater contamination beneath the site, and its extent offsite, were never fully delineated, violating NR 716. Vapor intrusion has never been assessed at the site as required by NR 716.

Further, many toxic chemicals known to be used and/or released at the site were inadequately assessed in soils and groundwater, or not measured at all. The solvents tetrachloroethylene (PCE) and trichloroethylene (TCE), as well as polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), perfluorooctane sulfonate (PFOS) and perfluoroactnoid acid (PFOA), radioactive compounds, and other toxic chemicals very likely to be present in the soils and groundwater at the site were minimally assessed or not assessed at all. The base still uses solvents (probably including TCE) as well as lubricants and fire-fighting chemicals, but they are not identified in any DNR or WANG documents available to the public.

Madison Truax WANG base was identified in the 2017 DoD Aqueous Film Forming Foam Report to Congress as one of the sites that had a "known or suspected" release of PFOS or PFOA. The report states that $115,700 has been spent to investigate this. What were the results of this investigation? PFOA and PFOS are not mentioned in any of the documents in the DNR remediation and redevelopment files.

Finally, several of the issues above, could affect the health and safety of Air Force personnel (especially vapor intrusion). According to the Title 32 CfR §989.27 Occupational safety and health, the EIS should "Assess direct and indirect impacts of proposed actions on the safety and health of Air Force employees and others at a work site."

The Draft EIS should include:

a. A complete list of all the chemicals, solvents, lubricants, etc. required for F-16 and F-35 maintenance and operations.
b. A full delineation of the vertical and lateral extents of the groundwater contamination currently at the site and how far it has traveled offsite in all directions.
c. Analysis of the potential for existing groundwater VOC plumes at the site to reach Madison Water Utility Well 15.
d. Complete testing for chemicals used and/or released on the site that have not been assessed or inadequately tested to date, including: TCE, PCE, PAHs, PCBs, metals, PFOA/PFAS, radioactive compounds.
e. Evaluation of how the chemicals used/spilled/released at the site (including those in "d" above) migrated (via ditches, storm drains, utilities, sewers, etc.) and how they could affect humans, waterways, wildlife and other receptors.
f. Thorough assessment of vapor intrusion in WANG base buildings where military staff live and/or work and potential for vapor intrusion in residential, school, and other buildings adjacent to the site.
(Most of the above are required by Wisconsin NR 700 laws, but were not adhered to at WANG base).

3. Impacts of stormwater runoff from Truax WANG on Starkweather Creek

Starkweather Creek, a highly impaired 303(d) listed waterway, surrounds the Air National Guard site on three sides. All stormwater runoff from the site discharges to the creek, which then flows to Lake Monona (also highly impaired) about 2.5 miles south. The airport and WANG base were built on drained wetlands,

and many ditches and culverts were built to drain the base's stormwater runoff to the west branch of the creek to prevent flooding. Air National Guard investigative reports explicitly state this.

Toxic chemicals and petroleum compounds used and released at WANG have already traveled via stormwater drains and ditches to Starkweather Creek. Sparse data available on Starkweather Creek indicate that stormwater runoff from the airport/WANG site has significantly and negatively affected it. Although EPA/DNR stormwater laws were put into place in the 1990s to better manage stormwater at the airport and WANG base, these laws are limited and allow much discretion in implementation and enforcement. The existing WANG stormwater permit (the base is a co-permittee with the Dane Co airport) requires only sporadic and limited testing of stormwater releases from the WANG base. Very few chemicals are assessed and the permit doesn't require any testing of stormwater released from the base directly into the creek. The most toxic chemicals known or likely to be at the site (chlorinated solvents, PFOS/PFOA, metals, radioactive materials, and more) are not assessed in stormwater discharged from the site. Several DNR stormwater laws are not being followed.

According to Title 32 Code of Federal Regulations (989.31 Pollution prevention), per the Pollution Prevention Act of 1990, 42 U.S.C. 13101(b), the Draft EIS "should analyze potential pollution that may result from the proposed action and alternatives and must discuss potential pollution prevention measures when such measures are feasible for incorporation into the proposal or alternatives."

The Draft EIS should include:

a. Comprehensive assessment of how contaminated stormwater runoff from the WANG site has already affected water, sediments, fish, wildlife etc. in Starkweather Creek (needed as baseline to assess point b)
b. Complete assessment of how F-35 operations and maintenance, and new facilities constructed for the F-35s, could affect Starkweather Creek (water, sediments, fish, and other wildlife) via stormwater runoff and other emissions (including air emissions).
c. Thorough description of how stormwater runoff and other toxic pollution from the WANG base into Starkweather Creek and nearby wetlands will be prevented.

4. Environmental, health, safety consequences of F-35 crashes

Since the 1950s, there have been over 20 crashes of military planes from Truax base in or near Madison and surrounding areas. Many of these crashes killed jet pilots and some killed or injured civilians. Several jets crashed into the lakes and released fuel and other chemicals into them. These crashes are clearly risks to the environment and the community, especially to people living very close to the base, where the jets take off and land and the risk of crashes is highest. As described above, there are several low income neighborhoods close to the base or under the landing/takeoff routes that are most vulnerable to potential crashes. According to analyses we have seen, the F-35s are predicted to crash at a higher rate than the F-16s, especially during their early years of operation.

F35 and other high-tech military jet crashes also pose significant environmental and public health risks beyond killing people from the crash itself—especially if the crash creates a fire. According to the 2015 Air Force Research Laboratory's *Composite Material Hazard Assessment at Crash Sites* (called "Composite Material" report hereafter): "Aircraft crash sites have numerous potential hazards. The types of hazards vary depending on the type of aircraft, whether or not casualties were involved, type of cargo, whether or not fire was involved, etc. If a fire was involved, more toxic substances will be created and released than a crash not involving a fire….

The Composite Material report delineates specific compounds that could be released by burning composite materials. "Potential contaminants/hazards include the following: jet fuel, unexploded ordnance, isocyanates, blood-borne pathogens, radioactive material, plastics, polymers composed of organic material, and composite fibers. Aircraft structural alloys include, but are not limited to, beryllium, aluminum, zinc, hydrazine (F-16), magnesium, titanium, and copper released in the form of metallic oxides, which pose an inhalation hazard to unprotected responders. Potential exposure to the civilian population depends upon their proximity to the crash site…"'

As the quote above highlights, the materials that the F-35s are composed of can be released at the crash site, especially if the plane burns. The "advanced composite materials" used in F-35s, in particular, pose heightened risks in a crash that results in a fire. According to the Composite Materials report, the F-35 will include 42% advanced composites (compared to 13% composites in the F-16s) that will include carbon fibers in the micron and nano-sized ranges. Numerous scientific studies have shown that carbon fibers in this size range, when inhaled, can have health effects similar to asbestos.

Several other toxic chemical byproducts can be generated when these composites burn, as described in the Composite Material report: "During an aircraft accident/mishap it is important to know that transformative processes take place and chemical byproducts are formed. The transformative process may create toxic materials that were not part of the original manufacture of the advanced composite. Chemical extraction analysis indicates a significant number of toxic substances are adsorbed on the fibers, several of which are known carcinogens." The report concludes: "Some aircraft should automatically be in the high-risk category due to the high percentage or large quantity of composite materials within the airframe. For example, the B-2, F-22, AV-8B, **and F-35** would be in this category."

Further, in addition to advanced composite materials, F-35s will have a stealth coating made of "advanced aerospace materials" that F-16s do not have. According to the 1995 U.S. Air Force report, "Mishap Risk Control for Advanced Aerospace/Composite Materials" (hereafter called the "Mishap" report), advanced aerospace materials" can include "Radar Absorbent Material (RAM), Beryllium, Depleted Uranium" (radioactive materials). The report notes that "Although advanced composite/aerospace materials represent only one of the many hazards associated with an aerospace mishap (fuel, weapons, metals), they do merit increased awareness because of their hazard potential and persistence. Exposures to the potentially harmful vapors, gases, composite particulates, and airborne fibers generated in a composite mishap need to be controlled because of the symbiotic effect of the dispersion forces and complex chemical mixtures."

The "Mishap" report states that "potential health and environmental effects from damaged advanced composites include dermal and respiratory problems, toxic products, contamination, and, in the case of advanced aerospace materials, **radiation**…. Off-gassing, toxic products in the smoke plume, smoldering debris, and airborne fire-damaged particulates are the primary respiratory hazards. Examples of combustion products include: Hydrogen cyanide, sulfur and silicon dioxide, formaldehyde, hydrogen fluoride, ammonia, hydrochloric acid, hydrogen sulfide, isocyanates, halogenated compounds and aromatics."

Another critical concern is the amount of time it takes to extinguish burning advanced composite materials and the preparedness of fire departments and fire fighters. The Composite Materials report includes a detailed description (and video) of what happened in 2008 when a military plane with advanced composite materials crashed and burned. Debris from the crash covered nearly 19,000 square meters. The debris burned and smoldered for nearly three days. Analyzing the crash, the report concluded that "[a]aircraft composite fires differ from metal aircraft fires because they add fuel to the fire by increasing the fuel load... Fires involving thick composite fires will require extensive time to extinguish." The analysis of the incident

concluded that local fire departments were overwhelmed by and unprepared for the incident, and concluded that firefighting units need to "develop new tactics and firefighting strategies specific to composite aircraft fires" and "start training to address this new type of fire threat…"

Further, if planes crash, the weapons carried by the planes can explode and/or release toxic materials from the munitions into the environment, posing risks to wildlife, soils, groundwater, surface water, and public health and safety. F-35s are capable of carrying nuclear weapons, and nuclear weapons have been carried by fighter planes at Truax in the past (as well as stored at the base and also likely at the nearby Armory—next to the low income Truax apartments). If F-35s will carry nuclear weapons, crashes could release radioactive materials into the environment, exposing people and ecosystems and contaminating ecosystems irreversibly.

Last but not least, the health and safety of Air Force personnel who will be intimately involved with F-35 crashes and responses to them are a critical concern that the ANG should address CfR §989.27, Occupational safety and health.

In light of the above, the Draft EIS should include:
a. Full assessment of which Madison residents and environmental resources (land, water, wildlife, wetlands, etc.) would be most at risk for a crash and the nature of the consequences to people and the environment.
b. Complete assessment of all chemicals, fuels, and other toxic materials that could be released if an F-35 crashes and burns, and the environmental and public health effects of these releases (including those related to the burning of the F-35's composite materials and stealth coatings).
c. Full analysis of all of the kinds of munitions/weapons that will be carried on these planes (including nuclear munitions) and what would be released from these munitions if the planes crash and/or burn and the environmental and public health effects caused by these releases.
d. Full assessment of the preparedness of local fire departments to deal with a crash of an F-35 at or near the base, into a residential area, or into Madison lakes.
e. Full assessment of how the health and safety of Air Force personnel will be protected in the case of F-35 crashes, explosions, burning, etc.—and responses to these incidents.

5. Emergency Planning Community Right-to-Know (EPCRA)
Related to #4, EPCRA laws are critical in assuring the community is protected from hazards related to toxic chemical, munitions, and fuel use and storage, operations and maintenance of the jets, potential crashes, and others that could occur at and near the Truax base. EPCRA laws also address the community's access to information about these issues and plans to inform the community in the case of toxic spills, fires, explosions, crashes, and other incidents at the base that pose risks to people living nearby.

It is not clear that EPCRA laws have been followed at the Truax WANG base.

The Draft EIS should address:
a. How all EPCRA laws are being followed to assure that that people near the base (at MATC, and adjacent neighborhoods) are protected in the case of a crash, chemical release, or other emergency at the site, how these people will be informed of such releases and emergencies, and what kinds of access they have to information about chemicals at the site.
b. How all EPCRA requirements will be met for new chemicals involved with operations and maintenance of F-35s, and potential crashes of these jets.

6. Noise effects

Like the F-16s do already, the F-35 supersonic fighter jets will produce significant noise that will affect many people on Madison's east and north sides, but will disproportionately affect the low income people living nearest to the base. Analyses show that the F-35s will be louder than the F-16s, especially on takeoff and landing.

There is a strong and growing body of studies showing the effects of noise on health. Studies show significant connections between noise (including at levels even noise below the hearing damaging criterion) and sleep disturbance, cognitive impairment, physiological stress reactions, endocrine imbalance, and cardiovascular disorders. High noise levels also cause psychological stress. Studies show that noise-induced physiological changes can promote the development of chronic disorders such as atherosclerosis, hypertension, and ischemic heart diseases in the long run.

Children are especially at risk. According to the World Health Organization's 2011 report, "*Environmental Health and Cognitive Impairment in Children*," over 20 studies have shown negative effects of noise on reading and memory in children. The report notes that "exposure during critical periods of learning at school could potentially impair development and have a lifelong effect on educational attainment." Noise induced cognitive impairment in children is thought to be the result of hearing loss, hormonal and neurotransmitter disruption, and psychological disorders that collectively affect brain development, structure and function.

There are also numerous studies showing that high noise levels negatively and significantly affect the health and reproduction of birds and wildlife.

The Draft EIS should include:
a. Comprehensive and state-of-the-art assessment of the types and levels of noise produced by the full range of operations of the F-35 jets (afterburner, in fight, take off, landing, etc.).
b. Thorough evaluation of the physical, social/psychological and neurological effects to Madison residents, especially to those people living closest to the base.
c. Thorough evaluation of the effects of noise on birds and wildlife in Cherokee Marsh, nearby wetlands, along Starkweather Creek, and other areas near the base.

7. Air emissions
Military jets emit numerous air pollutants, including volatile organic chemicals (VOCs), particulates (in the 5 and 10 micron range, as well as the < 1 micron or ultrafine range), metals, dioxins, carbon dioxide, sulfur dioxide, nitrogen dioxide, carbon monoxide, polycyclic aromatic hydrocarbons (PAHs), black carbon, and many more. These air emissions will be highest in areas very near the airport where the planes take off/land and afterburner is performed. People living in these neighborhoods already experience high levels of air pollution and the F-35 emissions from the base nearby will likely add to these exposures.

The Draft EIS should include:
a. Analysis of full range of types and levels of air pollutants F-35s will emit during all modes of operation.
b. Assessment of human exposures to these air pollutants, especially among those people living nearest to the base.
c. Effects of air pollution emitted from F-35s on the environment, fish and wildlife.
d. How air emissions from WANG military aircraft and their effects on human and environmental health will be mitigated.

8. Native American mounds and artifacts

The 2004 Air National Guard *"Preliminary Final Environmental Assessment for Proposed Construction Projects"* at the Truax Air National Guard stated that: "Archaeological surveys of potential development areas conducted at the airport in 1993 recorded two archaeological sites (FAA 1996)"and "Two historic mound sites are found between l and 2 miles away from the airport. A previously recorded mound site is located within the southern portion of the airport… The airport is considered to have a high potential for archeological materials in undeveloped areas (FAA 1996)." Since this report was published, it has been confirmed that Truax Field is home to a native burial mound termed "Truax Air Park Mound."

The draft EIS should consider:

a. Potential effects on the identified mound and all Native American artifacts, mounds, and other traditional resources on or near the ANG site that could be affected by site operations, pollution, jet crashes, etc.
b. Maps of where these mounds and other Native artifacts are and detailed plans for how they are being protected.

9. Ecological effects on adjacent wetlands and wildlife

The Truax WANG site is built on filled, former wetland and small remnant wetlands surround the site. Cherokee Marsh, a large wetland area, is just northwest of the base. These wetlands are critical for fish and wildlife habitat, filtering runoff to prevent water pollution, flood prevention, and numerous other critical ecological functions. According to Executive Order 11990 (Protection of Wetlands), "In furtherance of the National Environmental Policy Act…in order to avoid to the extent possible the long and short term adverse impacts associated with the destruction or modification of wetlands…Each agency shall provide leadership and shall take action to prevent the destruction, loss or degradation of wetlands, and to preserve and enhance natural and beneficial values of wetlands in carrying out the agency's responsibilities."

The Draft EIS should include:

a. A full evaluation of how wetlands near the base—and the birds, fish and wildlife that depend on them for food and habitat—will be affected by the noise, air, water, and other pollution related to the F-35 maintenance and operations, flights, and potential crashes.
b. How existing impacts on these wetlands are addressed and effects from operations and maintenance of F-35s will be mitigated.

10. Flooding/climate change

The Truax WANG site is in the floodplain of Starkweather Creek. People living near the base have observed the ditches and storm drains from the base practically overflowing their banks during heavy rain events, which will be exacerbated by climate change. Floods in at WANG will disturb existing contaminated soils and groundwater, releasing these contaminants into Starkweather Creek and adjacent wetlands. Per Executive Order 11998, "Before taking an action, each agency shall determine whether the proposed action will occur in a floodplain" and "Each agency shall provide leadership and shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains in carrying out its responsibilities…"

The Draft EIS should include:

a. Assessment of how future extreme weather events exacerbated by climate change could cause flooding at the Air National Guard base
b. Evaluation of potential consequences of such flooding on F-35 and base operations as well as potential releases of contaminated soils, groundwater, munitions and other toxic materials at the site into Starkweather Creek, adjacent wetlands, and residential and public areas adjacent to the base (MATC).