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**NIST-CPO/EA-003: Response to Draft Environmental Assessment for Intel Ocotillo**

Thank you for the opportunity to comment on the July 8, 2024 Draft Environmental Assessment for Intel Ocotillo (NIST-CPO/EA-003). CHIPS Communities United (CCU) is a national coalition of unions, environmental organizations, and community groups committed to the safe, equitable, and sustainable implementation of the CHIPS and Science Act.

We support investment in this project because semiconductors are essential to our national and regional economies, national security, and daily lives. We also appreciate that Intel has taken many steps to conserve resources and limit hazardous releases at its production facilities.

However, we do not believe that the draft Environmental Assessment (DEA) adequately assesses the direct, indirect, or cumulative environmental impacts of the planned expansion of Intel Corporation's Ocotillo facility. We request a full EIS for this major project. Thorough environmental analysis is necessary because:

- The public, as well as people who work at Intel, have a right to know what environmental hazards are associated with the proposed expansion.
- As Intel applies for environmental permit modifications, it is essential that the public and permitting agencies have complete, current data on the uses, storage, releases, and exposures of hazardous substances associated with production.
- Local agencies responsible for infrastructure investments and land use planning need the same complete, current data.
- Throughout its history, Intel has taken steps to mitigate its environmental impacts when those have been identified by public agencies and public interest organizations.
- The CHIPS Program Office (CPO) needs a clear roadmap for **requiring** best management practices (BMPs) in its agreements with Intel, in both Arizona and other locations where CHIPS funding has been promised. We suggest that those BMPs be identified, in detail, in a public Community Benefits Package, based on an improved environmental review and continuing public input.

The DEA is deficient for four principal reasons.

First, it treats Intel's policies and goals as *faits accomplis*. Even **when actions are identified as best management practices, the DEA provides no explanation of how they will be monitored and enforced.** The DEA states, "Intel OC's implementation of BMPs and mitigation measures will be subject to CPO monitoring." That's a start, but NEPA documentation should describe how CPO, with its limited resources, will monitor such activities, and the contract with Intel should include provisions for the retrieval of funding (clawbacks) if Intel fails to meet its stated goals.

Unless BMPs are included in the contract with Intel with enforcement mechanisms, the public has no assurance that the project will have no significant environmental impact.

Second, **the DEA provides insufficient detail** on the use, storage, and release of hazardous substances, as well as other environmental impacts, to conclude that there are no significant environmental impacts. It is improper to avoid describing environmental impacts simply because they are subject to government regulation or because the applicant promises to address them.

We believe a thorough examination of the potential environmental impacts from the Intel Ocotillo project will show that there are significant environmental impacts that should be identified and addressed through an Environmental Impact Statement (EIS). In the absence of enforceable, transparent requirements to address such impacts, the applicant's promise to address the impacts does not eliminate them.

Third, **while the draft EA includes a section entitled "cumulative effects," it fails to adequately assess or analyze those impacts**. An agency must provide some quantified or detailed information when considering cumulative impacts.[1] Its cumulative impacts analysis must also be useful and more than perfunctory.[2] The analysis in the EA does not clear this bar.

This is especially notable given the EA's recognition that the facility will be located in an area that is already in "serious nonattainment for $PM_{10}$" and "moderate nonattainment for 8-hour ozone" (93). At a minimum, it is imperative for the EA to consider how the proposed facility will combine with existing sources to impact compliance with National Ambient Air Quality Standards.Such an assessment should not only include projects directly supported by the CHIPS program, such as TSMC and Amkor, but 1) suppliers who come to the region to supply those manufacturers; 2) housing constructed to accommodate and attract employees from beyond the metropolitan area; 3) water and energy supply projects developed to meet the resource demands of the CHIPS projects. At the very least, tables showing the impacts of the project—such as Table 2-1 on Operational Resource Demand—should include data on Intel's other existing wafer fabrication facilities: 12, 22, and 32.

The DEA limits the geographic reach of potential cumulative effects to a three-mile radius around the Ocotillo campus. Needless to say, the impacts of air pollution, water use, electricity use, and Scope 1 greenhouse gas emissions extend far beyond three miles. This limited range makes a mockery of the very idea of cumulative effects and fails to provide a useful understanding of how the proposed project combines with other developments in the Phoenix metro region to impact the environment.

Fourth, **Intel's recent announcement of massive, company-wide lay-offs raises the question of whether there will be changes to the timeline or to planned mitigation** of environmental impacts.

[1] *Ocean Advocs. v. U.S. Army Corps of Engineers,* 402 F.3d 846, 868 (9th Cir. 2005)
[2] *Kern v. U.S. Bureau of Land Mgmt*., 284 F.3d 1062, 1075 (9th Cir. 2002)

For these reasons, we call for a robust EIS that can appropriately document the environmental impact of the project.

**AIR QUALITY**

Emerging medical science makes clear that exposure to even permissible levels of air pollution can be harmful to human health and shortens life spans.[3] Thus, the CHIPS Program Office should require all semiconductor manufacturers receiving CHIPS and Science Act funding to take all necessary and appropriate steps to keep toxic air emissions to an absolute minimum rather than simply adhering to existing EPA standards, which have been found empirically to be inadequately protective. A more thorough environmental review for the Intel Ocotillo site would provide the opportunity to explore and determine what those steps might be.

The Taiwan Semiconductor Manufacturing Company's 2022 Sustainability Report includes detailed information about possible approaches for achieving this end.[4] This report describes and analyzes the efforts implemented in one of the company's plants. The highlighted approach is to purchase, deploy, and match abatement equipment at points of use that is best suited to achieve the highest Destruction or Removal Efficiency (DRE) for each individual pollutant and then to treat that waste before venting to the ambient air. Neither the Intel Ocotillo DEA nor the permit for this facility[5] addresses any proposals to maximize abatement. Missing entirely is any reference to wet electrostatic precipitators for reducing particulates.

The DEA states that Intel's proposal complies with the permit's requirements and with federal, state, and local regulations and rules, and that it "…would not cause additional adverse air quality effects" (28). But later, in contrast, the DEA says that, "Overall, with Intel OC's implementation of BACT and LAER and use of ERCs, the Proposed Project would result in minor to moderate effects on air quality" (28). These statements appear contradictory. Moreover, some of the details in the DEA and permit suggest that the project's impact on air quality will by neither minor nor moderate. Limits for three of the criteria pollutants will increase substantially: Total VOCs - +91.4%; NOx - +43.7%; and CO - +23.4%, allowing the potential for greatly increased emissions. The limit for fluorides is very high, at 24 tons per year. Neither document includes limits for any of the other most dangerous individual VOCs and HAPs.

The DEA states that, "The Arizona Department of Environmental Quality follows the federal NAAQS with some further protections and enhancements in consideration of public health, safety, and welfare in the state" (21). In addition, a local Arizona air district, such as the one under the jurisdiction of the Maricopa County Air Quality Department (MCAQD), is authorized to require additional lower emission limits and other steps to reduce emissions. A more robust environmental review would provide an opportunity to consider lowering (rather than raising) emission limits and thus reducing emissions.

The permit includes several statements that are concerning and require clarification.

> Inorganic HAP emissions from the manufacturing operations shall be vented to the wet acid scrubbers unless the Permittee demonstrates to the satisfaction of the Control Officer that connecting the source to the control would result in dilution of the stream to the extent that overall HAP emissions would not be reduced.

[3] https://www.hsph.harvard.edu/news/press-releases/permissible-concentrations-air-pollution-mortality-risk/
[4] https://aaqr.org/articles/aaqr-23-02-oa-0034
[5] Title V Air Quality Operating Permit, Original Issue Date: January 11, 2016, Revision Date: August 25, 2021, Expiration Date: January 31, 2021.

This language seems to allow Intel to demonstrate that adding certain additional material to a waste stream would cause it to become too diluted to effectively abate it, and therefore, this additional material could be vented to the ambient air rather than making adjustments to the processes or deploying different equipment.

Other language in the permit refers to reasonably available control technology and best available control technology:

> For any major source operating in a non-attainment area for any pollutant(s) for which the source is classified as a major source, the source shall comply with reasonably available control technology (RACT) as defined in rule 100.
>
> …
>
> For any major source operating in a non-attainment area designated as serious for PM10, the source shall comply with the best available control technology (BACT), as defined in Rule 100 for PM10.

RACT and BACT allow Intel to consider cost when determining what is "reasonable" or "best" and to deploy equipment that is less effective or entirely inadequate because it is less expensive. If the aim is to prevent a significant environmental impact, the Lowest Achievable Emission Rate (LAER) standard should be used.

Chandler residents will be directly exposed to the emissions from Intel's Ocotillo plant. Figure 2-1 on page 7 of the EA depicts the site boundary of the Intel OC factory. It shows densely populated residential developments to the north, east, and south of the campus. The outer edge of one of these developments is less than 400 feet from the edge of the Intel OC boundary. To prevent human exposure to emissions, we call for a more comprehensive environmental review.

**CLIMATE CHANGE AND FOSSIL FUEL BURNING**

At a time when generators of GHGs are aiming to reduce their total emissions, Intel Ocotillo is permitted, by Maricopa County, to triple its annual releases from 459,742 MT CO2e/year to over 1.4 million MT/year, for an increase of 943,842 MT of CO2e (32). This amounts to a 2% increase in GHG emissions for Maricopa County (33). This is undoubtedly a significant impact, yet the air permit contains no language explaining why such massive emissions are acceptable. Especially when combined with the GHG emissions from other semiconductor plants incentivized by the CHIPS and Science Act, the proposed action therefore threatens to undermine the Biden-Harris administration's climate goals, unless strict guardrails are applied.

Scope 1. We recognize that Intel plans to reduce the release of potent fluorinated greenhouse gases through point-of-use incineration and "increasing the chemical breakdown (dissociation) of NF3," but we would like to see evidence that this does not create or release products of incomplete combustion or other transformation products (32). To our knowledge, such impacts are not captured in the reported DRE. In the absence of strict monitoring of emissions and other releases from treatment systems, manufacturers have little incentive to stop using fluorinated gases.

Scope 2. Intel's expanded electricity use will drive expansion of fossil fuel burning. In the load forecast for its 2023 Integrated Resource Plan, Arizona Public Service (APS) projects that electricity demand from large electricity customers will jump from 3% in 2023 to 34% in 2038, driven primarily by data centers and industrial customers like Intel's expanded semiconductor manufacturing. APS's integrated resource plan for the next fifteen years points to this growing industrial demand in part to justify a delay in a coal plant retirement and replacement with gas fired generation. The utility forecasts a 1.8 GW load growth by large

industrial customers in the next five years; the impact of this growth on peak demand will require new investments in fossil gas generation capacity, which will have significant negative long term impacts on Arizona's climate emissions and clean energy transition.[6]

Expansion of gas power plants in response to increased demand from Intel, then, may well result in significant and long-term emissions growth, delay system-wide grid decarbonization, and lock in fossil fuel demand well past the cut-off recommended by repeated IPCC reports.

It may also lead to negative consequences for public health and environmental justice. The American Lung Association reports that emissions from gas-powered plants can harm health hundreds of miles downwind, and have impacts which include:

- Direct impacts. Emissions directly released include sulfur dioxide, nitrogen dioxide, and carbon monoxide, as well as hazardous pollutants that can cause cancer and other health problems. Even biomass plants can produce very harmful emissions.
- Particle Pollution. Particle pollution forms directly, seen as ash and soot, or indirectly, as sulfur dioxide and nitrogen dioxide emissions convert into particles once they reach the outside air. These particles are so tiny they can blow hundreds of miles from the source.
- Ozone Pollution. Emissions of nitrogen dioxide react in the air with other gases to form ozone pollution, the nation's most widespread air pollutant. Ozone can also spread across thousands of miles.[7]

A full EIS should explore these impacts.

Intel Ocotillo proposes to offset its Scope 2 emissions by purchasing Renewable Energy Certificates, but the purchase of unbundled RECs is widely understood to be inadequate. The US Department of Energy, to take just one example, has explicitly concluded that RECs are not effective in reducing GHG emissions (pollution) or deploying additional renewable energy:

> Given the impacts of adding load to the grid… purchasing an EAC from any low-GHG generator is not in and of itself sufficient to justify a claim of low lifecycle GHG emissions due to the presence of induced effects.[8]

Numerous academic studies have shown that the relatively small revenue generated from the sale of unbundled RECs at their current low per unit price has done little to expand renewable energy capacity.[9] Recent studies indicate that the purchase of unbundled RECs rarely results in the addition

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[6] https://www.aps.com/-/media/APS/APSCOM-PDFs/About/Our-Company/Doing-business-with-us/Resource-Planning-and-Management/APS_Public_Stakeholder_Meeting_Recap_04-07-2023.ashx?la=en&hash=707B427B35EC1A6491B7ADE8B61202E3

[7] https://www.lung.org/clean-air/outdoors/what-makes-air-unhealthy/electric-utilities

[8] Department of Energy, Assessing Lifecycle Greenhouse Gas Emissions Associated with Electricity Use for the Section 45V Clean Hydrogen Production Tax Credit. p.8 https://www.energy.gov/sites/default/files/2023-12/Assessing_Lifecycle_Greenhouse_Gas_Emissions_Associated_with_Electricity_Use_for_the_Section_45V_Clean_Hydrogen_Production_Tax_Credit.pdf

[9] Holt, E., Sumner J. and Bird, L. "The Role of Renewable Energy Certificates in Developing New Renewable Energy Projects" National Renewable Energy Laboratory January 2011. https://www.nrel.gov/docs/fy11osti/51904.pdf; Brander, M, Gillenwater, M & Ascui, F 2018, "Creative accounting: A critical perspective on the market based method for reporting purchased electricity (scope 2) emissions", Energy Policy, vol. 112, pp. 29-33. https://doi.org/10.1016/j.enpol.2017.09.051)

of renewable energy to the grid, and in fact are significantly undermining the credibility of voluntary corporate targets under the Science Based Target initiative.[10]

To accurately represent its impacts, the environmental review should quantify the purchase of RECs and specify what criteria will be used to source RECs.

**WATER RESOURCES**

We appreciate Intel's record of conserving and reusing water at its Ocotillo facility. However, according to Table 2-1, the company still plans to consume up to 14 million gallons of water a day, including 6.1 million gallons per day of City Potable Water. The DEA states,

> The City of Chandler lies within the Phoenix AMA and is subject to the Assured Water Supply Program. The Intel OC Facility's water historically has been supplied primarily by the City of Chandler's potable water system. In 2021, Intel and the City executed a Development Agreement in which the City committed to supplying the additional water needed for the Proposed Project from several existing sources. (36)

We believe that allocation of such a limited resource, in an arid, growing region, does not prove that there is no significant impact. In fact, NEPA review of CHIPS projects in the Phoenix area should evaluate the cumulative impact of water use from Intel, TSMC, Amkor, and any other CHIPS-funded projects, as well as the expanded consumption of residential water by people who move to the region because of the direct and indirect employment opportunities created by such projects.

Figure 3-1 describes the various flows of water associated with the Intel facility. To be useful, it should include quantitative estimates for each flow. Also, it should be modified to show where, and in what quantities, water is discharged into the environment, including vapors and groundwater discharge.

News reports suggest that the assured water supply for the chipmaking projects in the Phoenix area is dependent upon new regional investments in water infrastructure or the acquisition of water rights from nearby tribes.[11] If so, appropriate NEPA review should examine the environmental impacts of such investments.

**HUMAN HEALTH AND SAFETY**

Engineering Controls. On paper, Intel's Engineering Controls policy appears protective. The DEA states,

> Intel has a design standard to minimize potential for chemical releases and exposure to moving parts and hazardous energies. These include closed systems for chemical distribution systems, chemical detection systems tied to source shutoff in case of accidental release, barriers to SME to prevent accidental contact with moving parts or hazardous energies, and interlocks for process chambers and high hazard enclosures which might be accidentally opened or left open. (18)

However, to find that chemical exposures are unlikely to create significant impacts, three things are needed:

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[10] Bjorn, Lloyd, Bander, Matthew. "Renewable energy certificates threaten the integrity of corporate science-based targets" Nature Climate Change, volume 12, pages 539–546 (2022) https://www.nature.com/articles/s41558-022-01379-5

[11] Erin X. Wong, "A Silicon Revival in the West," *High Country News*, August 1, 2024, https://www.hcn.org/issues/56-8/a-silicon-revival-in-the-west/

- Design standards should be public, available for independent review.
- If satisfactory, the design standard should be made an enforceable condition of Intel's CHIPS Act grant.
- There should be assurance that employees can raise safety questions without fear of reprisal.

Exposure Standards. The DEA states,

> Intel applies the most protective OELs based on published industry standards for each chemical used across its Facility operations to promote worker health and safety. Intel establishes its own Intel Threshold Limits for occupational exposure defined as the lower of either the local regulatory limit or the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV). Intel may choose to establish a lower limit or its own limit where no standard exists. (17)

To be effective, standards must be transparent (accessible to workers and the public), for each chemical used in production. This transparency should be an enforceable condition of Intel's CHIPS grant. CHIPS Communities United has not seen Intel's Threshold Limits, nor do we know how to access them.

Furthermore, in comparing "published industry standards" to determine which is most protective, Intel should consider U.S. EPA's Regional Screening Levels for worker inhalation exposure.[12] This is a current, comprehensive table—except for PFAS compounds—based on sound science.

NMP. The CHIPS Office Final Programmatic Assessment for Modernization and Expansion highlighted the question of NMP use. It explained, "traditional solvents used in fab cleaning processes contain N-Methyl pyrrolidone (NMP), which is known to cause harm to reproductive systems. Therefore, some manufacturers have begun to replace conventional solvents with NMP-free varieties."[13] Yet there is no mention of NMP in the DEA for Intel Ocotillo. Intel's most recent data in EPA's Toxic Release Inventory showed massive annual releases from Ocotillo. Yet Intel's April, 2022 "Chemical/Material Selection Guideline" says that Intel does not allow the use of NMP>=0.1& concentration.[14] Is Intel still using NMP as a solvent in Chandler? If so, how much? If not, what substitute is the company using, and is it safe?

**HAZARDOUS MATERIALS AND WASTES**

Extremely Hazardous Substances. Certain extremely hazardous substances are essential to semiconductor production. In particular, the draft EA identifies arsenic, boron, and phosphorus as dopants, but it doesn't name their gaseous forms: arsine, diborane, and phosphine. In addition, the draft EA mentions the use of "toxic and corrosive gases such as hydrogen chloride, hydrogen fluoride, silane, and dichlorosilane" (12). Nitrogen trifluoride is not just a greenhouse gas. It is highly toxic.

Releases of such gases may be infrequent, but they occur. By way of example, in April 2021, a phosphine leak at Apple Computer's fab in Santa Clara, California, caused the evacuation of 50 employees. In July 2023, the Oregon Department of Environmental Quality penalized Intel Corporation for violating its Air

[12] https://semspub.epa.gov/work/HQ/404479.pdf
[13] US Department of Commerce, Final Programmatic Environmental Assessment for Modernization and Expansion of Existing Semiconductor Fabrication Facilities under the CHIPS Incentives Program, June 28, 2024, https://www.nist.gov/document/final-pea-modernization-and-expansion-semiconductor-fabs, 69
[14] https://www.intel.com/content/www/us/en/content-details/814968/chemical-material-selection-guideline.html

Contaminant Discharge Permit for the release of acid gases. In 2013, a nitrogen trifluoride leak at Intel's Ocotillo plant sent a dozen people to the hospital.

Releases of such gases are potentially catastrophic, even lethal. As such, their presence qualifies as a significant environmental impact. Plant employees and neighbors have a right to know, in detail, about the quantities of each of the extremely hazardous gases that are used and stored at the Intel plant. Furthermore, land use planners should be aware of the risk of toxic gas releases as they plan for homes, schools, and daycare centers, among other uses, near the Intel plant.

The SEMI S2 standard lists 26 highly toxic semiconductor production gases for which continuous monitoring is recommended, as well as another 9 where monitoring may be recommended. The DEA for Intel Ocotillo should list all the gases from those lists that Intel intends to use, with anticipated quantities of use, storage, and emission.

As the DEA describes, federal law "requires the Facility to establish an RMP [Risk Management Plan] to manage potential chemical accidents at the Facility and outline emergency response procedures" (65). A thorough NEPA review should list those chemicals for which RMPs are necessary. Using the stated principle of adopting the most protective standards, Intel should be required to prepare RMPs for any chemical for which the storage quantity exceeds the thresholds for California's Accidental Release Prevention Program. In many cases, U.S. EPA's threshold is an order of magnitude less protective than California's. For example, the California storage thresholds for Arsine and Hydrogen Fluoride are 100 pounds. [15] The Federal counterparts are 1,000 pounds.

Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS). PFAS are persistent, toxic, bioaccumulative, and ubiquitous. Well-studied PFAS have been linked to cancer, immunotoxicity, reproductive, and developmental harm, and other serious health effects at extremely low exposure levels. Cumulative releases of PFAS into the environment have global, irreversible impacts. Yet the Semiconductor Industry PFAS Consortium has made a strong case that PFAS compounds are essential to chipmaking at multiple stages of production. Replacing them with non-PFAS compounds would take many years, if ever. Intel, like other semiconductor manufacturers, has ceased using long-chain PFAS such as PFOA and PFOS. It appears to have substituted shorter chain PFAS that remain persistent, highly toxic, and in many cases, more difficult to remove from wastewater.

Any continuing release of PFAS into the environment should be considered a significant impact until proven otherwise. The CPO's own Final Programmatic Environmental Assessment for Modernization and Expansion concluded, "Wastewater discharge from semiconductor fabrication facilities presents a substantial risk for PFAS contamination of the environment."[16] The DEA point out, "Specifically, to limit discharges of PFAS to wastewater, the Facility segregates manufacturing process chemicals known to contain PFAS from other waste streams, directs the waste that contains PFAS to a closed bulk system, and arranges for it to be shipped to an off-site permitted treatment and disposal facility" (38).

However, the DEA also explains, "there are no current regulations on testing or pre-treatment for PFAS in wastewater or disposal of PFAS waste" (38). In the absence of such regulations, it is essential that the NEPA documentation for the Intel Ocotillo plant estimate the target and non-target PFAS in the internal waste

[15] https://calepa.ca.gov/california-accidental-release-prevention/california-accidental-release-prevention-program-resources/

[16] *Op. cit.,* C-15

streams as well as discharges to the Chandler wastewater treatment plant.[17] It should also describe where and how PFAS will be destroyed at permitted off-site facilities.

As a condition of its CHIPS award, Intel should be required to adopt environmentally protective removal and destruction technologies as soon as they become available, and information about the PFAS-contaminated waste streams is needed both to develop those technologies and implement suitable requirements. One cannot assume that monitoring, removal, and destruction technologies developed to address long-chain PFAS are effective for the shorter chain PFAS now used by Intel and its competitors.

Segregating PFAS wastes from other wastewater, as proposed by Intel, is an appropriate first step. However, as we wrote in our comments on the TSMC draft EA, shipping PFAS contaminated water to a permitted treatment and disposal facility does not eliminate the environmental impacts. The draft EA should identify the facility and the method of treatment.

More specifically, the environmental review should answer many more questions:

***At the Intel Site:***

- Where in the production process will PFAS wastes be separated from other production wastes?
- Which PFAS compounds are likely to be included in that waste stream?
- What other substances are likely to be mixed with the PFAS wastes?
- How much wastewater will be directed to the bulk storage system?
- Will the PFAS-contaminated wastewater be filtered or concentrated before shipping off site?

***Off site:*** Shipping off site is not a "get out of jail free" card when it comes to environmental impacts. In fact, the National Environmental Policy Act requires the consideration of indirect and cumulative effects of the project under review.

- How will the PFAS waste be transported to the permitted facility?
- Where is that facility located?

Given the language in the DEA about off-site disposal, it's not clear to what degree Intel will be relying on existing wastewater treatment systems to address PFAS. The draft EA says,

> For any residual PFAS in Facility wastewater, Intel's WaTR plant (implemented to help meet Intel's commitment to treat and reuse more water on-site) has been demonstrated as an effective treatment system for PFAS estimated to remove more than 90 percent of residual detectable PFAS treated through thermal and reverse osmosis systems, leaving only low parts per trillion to low parts per billion remaining in Facility wastewater discharges. These estimated residual PFAS concentrations in wastewater discharges from the Facility are based on sampling data for a comparable water treatment system at another Intel facility in the United States. (38)

This sounds promising, but it requires clarification:

[17] A Cornell University study sponsored by the semiconductor industry found that concentrations of non-targeted (not specifically identified) PFAS in chipmaking waste streams exceeded levels of known compounds.)

- What happens to the remaining 10%?
- What is being treated thermally, the wastewater or the filtration media? What happens to the PFAS captured by reverse osmosis?
- At the other Intel facility, what PFAS compounds have been identified and what levels are found after treatment? What are the levels of total organic fluorine?

**SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE**

The socioeconomics section of the draft EA notes the potential for displacement of low-income neighbors. "Workers relocating to the area that can afford higher housing prices could potentially displace lower income residents, causing some to move to more affordable areas" (80). Presumably the city of Chandler and/or Maricopa County has conducted studies that could be used to determine how significant this impact could be. Full environmental review should evaluate the cumulative residential impact of workforce expansion from CHIPS investments in the Phoenix area, not to oppose those investments, but to guide public policy to minimize the negative impacts. In other centers of high-tech employment, such as Silicon Valley, industry "success" had brought significant negative impacts to the low-income population, driving out entire BIPOC communities.

At a broader level, and related to the question of socioeconomics, NEPA review should be updated to evaluate the impact of Intel's recent announcement that it will lay off 15,000 direct employees. How will the reduction in force affect its headcount in Arizona? How will it influence the indirect workforce?

The layoffs are reportedly the result of Intel's financial difficulties. Will those difficulties impact the adoption of BMPs? Will the new staffing and financial circumstances influence the timing of the Intel Ocotillo expansion? It's quite possible that a more relaxed construction timetable would allow for the more thorough environmental review that we are requesting.

In closing, we note that a robust public review of the project might also be an appropriate way to assess whether Intel's CHIPS funding is consistent with the objective of providing more American jobs, given the combination of lay-offs with Intel's massive stock buybacks and inflated executive compensation.[18]

[18] Sarah Anderson and Natalia Renta, "Maximizing the Benefits of the CHIPS Program," Institute for Policy Studies, July 11, 2024, https://ips-dc.org/report-maximizing-the-benefits-of-the-chips-program/