

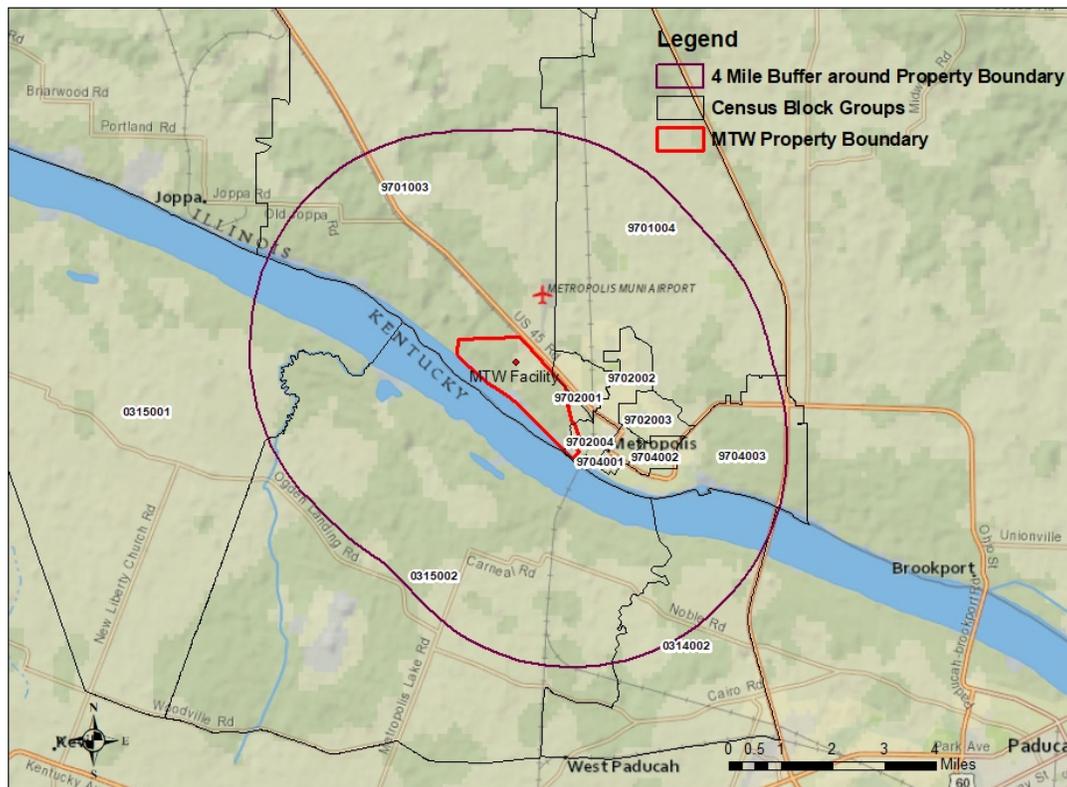
Environmental Justice Analysis for Honeywell Facility

The following steps detail and document the environmental justice screening analysis for the Honeywell Metropolis Works facility in southern Illinois performed in April 2018. This analysis was designed to determine whether the conditions identified for necessitating a more detailed environmental justice analysis, as described in the following guidance from the Nuclear Regulatory Commission guidance (NUREG-1748, Appendix B), are met for this facility:

*The next step is to compare the percentage of minority population in the block groups in the area for assessment to the state and county percentages of minority population and to compare the area's percentage of economically stressed households to the state and county percentages of economically stressed households. It is possible that the geographic area could cross county and state lines and this should be considered when making comparisons. If the percentage in the block groups significantly exceed that of the state or county percentage for either minority or low-income population, environmental justice will have to be considered in greater detail. As a general matter (and where appropriate), **staff may consider differences greater than 20 percentage points to be significant. Additionally, if either the minority or low-income population percentage exceeds 50 percent, environmental justice will have to be considered in greater detail.***

- 1) Determine the block groups of interest.

Using Esri ArcMap10, the Honeywell facility boundaries were plotted and then a 4-mile buffer was drawn surrounding the facility to identify the census block groups within 4 miles of the Honeywell facility. Figure 1 shows this area with each of the census block group IDs within this 4-mile buffer identified.



Note: None of the census block groups within a 4 mile radius of the property boundary meet the minority population or household poverty criteria.

Figure 1. Census Block Group IDs within a 4-mile Radius of Honeywell Facility

- 2) Download Minority Population data for each identified block group, county, and state.

The Minority Percent was obtained from data provided with EPA's EJSCREEN Tool (EPA 2018a). The source of the population data used in this version of EJSCREEN is the American Community Survey 2011-2015 tables. The data file with minority population by census block group was downloaded at: ftp://newftp.epa.gov/EJSCREEN/2017/EJSCREEN_2017_USPR_Public.csv. From this file, the following fields were extracted: ID, ACSTOTPOP, MINORPOP, and MINORPCT for all census block groups in the states identified in Step 1 above (i.e., Illinois and Kentucky). This is a very large file and takes a while to download but can be opened in Excel. The website with all the EJSCREEN information can be found at www.epa.gov/ejscreen. The selected data fields have the following descriptions, per the EJSCREEN documentation (EPA 2017):

ID:	Block Group ID
ACSTOTPOP:	Total Population
MINORPOP:	Minority Population
MINORPCT:	Pct. Minority Population

The raw data file on SC&A's Honeywell SharePoint site is EJSCREEN_2017_USPR_Public.csv. The file EJSCREEN_2017_IL_KY.csv, also on the SharePoint site, contains data for just the states of Illinois and Kentucky, and just the data fields listed above.

Within EJSCREEN, EPA uses the following definition for minority (EPA 2017): *“The number or percent of individuals in a block group who list their racial status as a race other than white alone and/or list their ethnicity as Hispanic or Latino. That is, all people other than non-Hispanic white-alone individuals. The word “alone” in this case indicates that the person is of a single race, since multiracial individuals are tabulated in another category –a non-Hispanic individual who is half white and half American Indian would be counted as a minority by this definition.”*

3) Download Household Poverty data for each identified block group, county, and state.

The Household Poverty data were obtained from an American Community Survey (ACS) table (USCB 2018). From the web page <https://www.census.gov/geo/maps-data/data/tiger-data.html> in the selection box labeled “Block Group – select a state”, Illinois and Kentucky were selected in separate queries from the dropdown menu which results in downloading a zipped geodatabase (GDB) file. The GDB files were extracted from the ZIP files and opened using Esri ArcCatalog. Within the database for each state, the relevant table is called X17_POVERTY.

In the X17_POVERTY table, the data fields of interest to this analysis are:

GEOID: identifier which includes the Block Group ID number as the 12 rightmost characters;
B17017e2: the number of households in poverty within the block group; and
B17017e1: the total number of households within the block group.

The SharePoint folder contains the following relevant files:

- ACS_2015_5YR_BG_17.gdb.zip and ACS_2015_5YR_BG_21.gdb.zip: the zipped raw ACS GDB files for Illinois and Kentucky, respectively.
- X17_POVERTY_IL.dbf and X17_POVERTY_KY.dbf: the X17_POVERTY tables extracted from the geodatabases in dbf format (can be opened in Excel).
- X17_POVERTY_IL.xlsx and X17_POVERTY_KY.xlsx: the X17_POVERTY tables for Illinois and Kentucky with just the relevant columns, discussed above.

4) Perform calculations.

To complete the assessment described in the Nuclear Regulatory Commission guidance described above, the minority population percentage and the percentage of households in poverty were calculated for each census block group, county, and state identified in Step 1 above. This is done in the spreadsheet Honeywell_Minority_Poverty_Calcs.xlsx. Within this spreadsheet, the EJSCREEN population and minority population data for Illinois and Kentucky are copied on the first tab labeled EJSCREEN_2017_IL_KY. The poverty data for Illinois and Kentucky are copied on the tabs labeled X17_POVERTY_IL and X17_POVERTY_KY, respectively. Finally, the minority percentages and household poverty percentages for each block group ID, county, and state identified in Step 1 are presented on the tab labeled Calcs and Summary.

For the block group IDs, the minority percentage of the population is in the field MINORPCT of the EJSCREEN data, so these values are looked up by block group ID in the summary table. To calculate the

minority percentage at the county or state level, the minority population in the county or state was summed and divided by the sum of the total population in the county or state. These calculations are performed in column D of the Calcs and Summary tab.

The household poverty percentages were calculated by dividing number of households in poverty within the block group (column B17017e2) by the total number of households within the block group lists (column B17017e1). To estimate the county and state percentages of households in poverty, the number of households in poverty were summed for the county or state and divided by the sum of the total number of households in poverty in the state or county. These calculations are performed in column E of the Calcs and Summary tab.

Finally, to determine whether any potential environmental justice concerns might arise in the census block groups within the 4-mile radius of the Honeywell facility, the differences between the minority percentages and household poverty percentages at the block group level and the state or county level were calculated (columns F through I). Negative values in these columns indicate that the minority or household poverty percentage in the block group are lower than the corresponding state or county value, while positive values indicate that the block group has a higher minority percent or household poverty percent than the corresponding county or state.

Per the paragraph above from NUREG-1748, a value of 20% or greater in any of columns F through I would indicate that environmental justice would need to be considered in greater detail for this project. None of the values exceeds 20%. The closest block group to meeting this threshold is block group 171279704004 in Massac County, Illinois. The household poverty rate for this block group is 19.74% greater than the household poverty percentage for the state of Illinois. NUREG-1748 also indicates that environmental justice would need to be considered in greater detail is any of the minority or household poverty percentages exceed 50% at the block group level. All these block groups fall below this threshold for both minority percentage and household poverty percentage. Table 1 summarizes this analysis.

Table 1. Summary of Minority Percentage of Population and Household Poverty Percentage in Areas within 4-Mile Buffer of Honeywell Facility

Block Group ID	State	Minority Percent	Household Poverty Percent	Difference from State Values		Difference from County Values	
				Minority	Household Poverty	Minority	Household Poverty
171279701003	IL	13.75%	12.26%	-23.78%	-1.19%	2.89%	-3.86%
171279701004	IL	1.09%	3.38%	-36.44%	-10.07%	-9.77%	-12.74%
171279702001	IL	6.72%	9.06%	-30.81%	-4.39%	-4.14%	-7.06%
171279702002	IL	11.86%	26.52%	-25.67%	13.08%	1.00%	10.40%
171279702003	IL	4.38%	13.81%	-33.15%	0.37%	-6.48%	-2.31%
171279702004	IL	19.52%	29.83%	-18.02%	16.39%	8.66%	13.72%
171279704001	IL	19.18%	33.18%	-18.36%	19.74%	8.31%	17.06%
171279704002	IL	12.61%	27.78%	-24.93%	14.33%	1.74%	11.66%
171279704003	IL	9.10%	7.69%	-28.43%	-5.75%	-1.76%	-8.43%
Massac County	IL	10.86%	16.12%				
State of Illinois	IL	37.53%	13.44%				
211450314002	KY	11.17%	19.24%	-3.28%	0.72%	-5.11%	2.29%
211450315001	KY	7.87%	10.36%	-6.58%	-8.16%	-8.40%	-6.59%
211450315002	KY	15.40%	19.75%	0.95%	1.24%	-0.87%	2.81%
McCracken County	KY	16.27%	16.94%				
State of Kentucky	KY	14.45%	18.52%				

References:

EPA 2018a: U.S. Environmental Protection Agency, EJSCREEN: Environmental Justice Screening and Mapping Tool, downloaded April 5, 2018 from <ftp://newftp.epa.gov/EJSCREEN/2017/>.

EPA 2018b: U.S. Environmental Protection Agency, EJScreen_Index_DescriptionsV4_Pub.xlsx, downloaded April 5, 2018 from <ftp://newftp.epa.gov/EJSCREEN/2017/>.

EPA 2017: U.S. Environmental Protection Agency, "EJSCREEN: Environmental Justice Mapping and Screening Tool, EJSCREEN Technical Documentation," Office of Policy, Washington, DC, August 2017. Available at https://www.epa.gov/sites/production/files/2017-09/documents/2017_ejscreen_technical_document.pdf.

USCB 2018: U.S. Census Bureau, TIGER/Line with Selected Demographic and Economic Data, American Community Survey 5-Year Estimates, 2011-2015 Detailed Tables, downloaded from <https://www.census.gov/geo/maps-data/data/tiger-data.html>, downloaded April 5, 2018.