# AMBIENT AIR DATA SUMMARY TABLE - AUGUST 2008
## Iron King Mine - Humboldt Smelter Superfund Site, Yavapai County, Humboldt - Arizona

| Monitoring Station | Chemical | Minimum Concentration | Maximum Concentration | Units | Location of Maximum Concentration | Average Detected Concentration | Screening Criteria (1) | Exceedance (Yes/No) |
|---|---|---|---|---|---|---|---|---|
| Iron King Mine | Arsenic | 0.0195 | 0.0354 | ug/m3 | AIK-01 | 0.027 | 0.00057 | Yes |
| Iron King Mine | Arsenic | 0.0318 | 0.0318 | ug/m3 | AIK-01A | 0.032 | 0.00057 | Yes |
| Iron King Mine | Arsenic | 0.0262 | 0.0262 | ug/m3 | AIK-02 | 0.026 | 0.00057 | Yes |
| Humboldt Smelter | Lead | 0.0161 | 0.0161 | ug/m3 | AHS-03 | 0.016 | 0.15 | No |
| Iron King Mine | Lead | 0.036 | 0.0447 | ug/m3 | AIK-01 | 0.040 | 0.15 | No |
| Iron King Mine | Lead | 0.0199 | 0.0199 | ug/m3 | AIK-01A | 0.020 | 0.15 | No |
| Iron King Mine | Lead | 0.0108 | 0.0108 | ug/m3 | AIK-02 | 0.011 | 0.15 | No |
| Humboldt Smelter | Particulate Matter | 0 | 37.3739 | ug/m3 | AHS-03 | 17 | 150 | No |
| Humboldt Smelter Background | Particulate Matter | -12.1197 | 36.2056 | ug/m3 | AHS-01 | 9.6 | 150 | No |
| Humboldt Smelter In Town | Particulate Matter | -12.4704 | 60.7238 | ug/m3 | AHS-02 | 18 | 150 | No |
| Iron King Mine | Particulate Matter | 0 | 33.428 | ug/m3 | AIK-01 | 22 | 150 | No |
| Iron King Mine | Particulate Matter | -23.5349 | 36.6166 | ug/m3 | AIK-01A | 17 | 150 | No |
| Iron King Mine | Particulate Matter | -13.7061 | 71.7789 | ug/m3 | AIK-02 | 11 | 150 | No |
| Iron King Mine In Town | Particulate Matter | 0 | 35.9669 | ug/m3 | AIK-03 | 16 | 150 | No |
| Humboldt Smelter | Total Suspended Particulates | 0 | 50.1567 | ug/m3 | AHS-03 | 24 | 150 | No |
| Humboldt Smelter Background | Total Suspended Particulates | -12.4595 | 38.1582 | ug/m3 | AHS-01 | 7.6 | 150 | No |
| Humboldt Smelter In Town | Total Suspended Particulates | -23.3372 | 53.5619 | ug/m3 | AHS-02 | 13 | 150 | No |
| Iron King Mine | Total Suspended Particulates | 0 | 134.6801 | ug/m3 | AIK-01 | 40 | 150 | No |
| Iron King Mine | Total Suspended Particulates | -7.0605 | 36.7017 | ug/m3 | AIK-01A | 14 | 150 | No |
| Iron King Mine | Total Suspended Particulates | -11.6212 | 48.6973 | ug/m3 | AIK-02 | 19 | 150 | No |
| Iron King Mine In Town | Total Suspended Particulates | -17.2295 | 49.5847 | ug/m3 | AIK-03 | 16 | 150 | No |

**Notes:**
ug/m3 = Micrograms per cubic meter.
-- = Not applicable or not available

(1) Screening criteria are EPA Regional Residential Air Screening Levels except for lead, particulate matter, and total suspended particulates, which are National Ambient Air Quality Standards.

**This dataset represents samples collected from 17 through 31 August 2008 from various locations at the Site.**

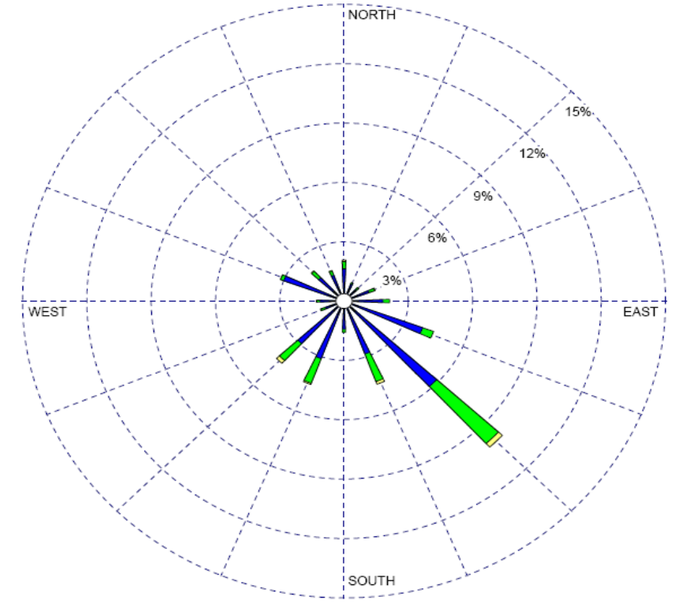
**Wind Speed/Direction**
The predominant wind direction for this time period was from the Southeast, with other strong winds from the southwest. From East to West through North, the winds were typically much lighter.

**Air Particulate Concentrations**
The average Particulate Matter (PM-10) concentration collected from the background station (AHS-01) was 9.6 ug/m3. The other air sampling locations had average concentrations of PM-10 greater than background. However, all stations showed PM-10 less than the 24-Hour National Ambient Air Quality Standard for PM-10 of 150 ug/m3. The sampling location with the highest average concentration of 22 ug/m3 was at the Iron King Mine Station (AIK-01), which was located adjacent to an unimproved road. The maximum PM-10 concentration (71.8 ug/m3) was located at the Iron King Mine Station (AIK-02). Similar results were obtained for the Total Suspended Particulate Samples.

**Arsenic and Lead**
The predominant contaminants of concern at the Site are arsenic and lead. Arsenic was detected in 4 of the 80 samples collected from the air sampling stations. The 4 arsenic detections were located at the Iron King Mine stations (AIK-01, AIK-01A, and AIK-02). Arsenic concentrations in these samples exceeded the EPA Regional Air Screening Levels for residential exposure of 0.00057 ug/m3.

Lead was detected in 5 of the 80 samples collected from the air sampling stations. The 5 lead detections were located at the Iron King Mine stations (AIK-1, AIK-01A, and AIK-02) and Humboldt Smelter station (AHS-03). Detected concentrations were less than the National Ambient Air Quality Standard for lead of 0.15 ug/m3.

**Summary**
Based on a preliminary analysis of the data, the PM-10 levels downwind of the Iron King Mine and the Humboldt Smelter are greater than background but less than the National Ambient Air Quality Standards. Although infrequently detected, arsenic concentrations in the vicinity of the Iron King Mine are greater than EPA Air Regional Screening Levels for residential exposure. The source of arsenic (e.g., unimproved road or tailings piles) is undetermined. Lead was also infrequently detected in the vicinity of the Iron King Mine and the Humboldt Smelter, but concentrations were less than the National Ambient Air Quality Standard for lead. EPA will continue to monitor air quality in the vicinity of the Site through August 2009.

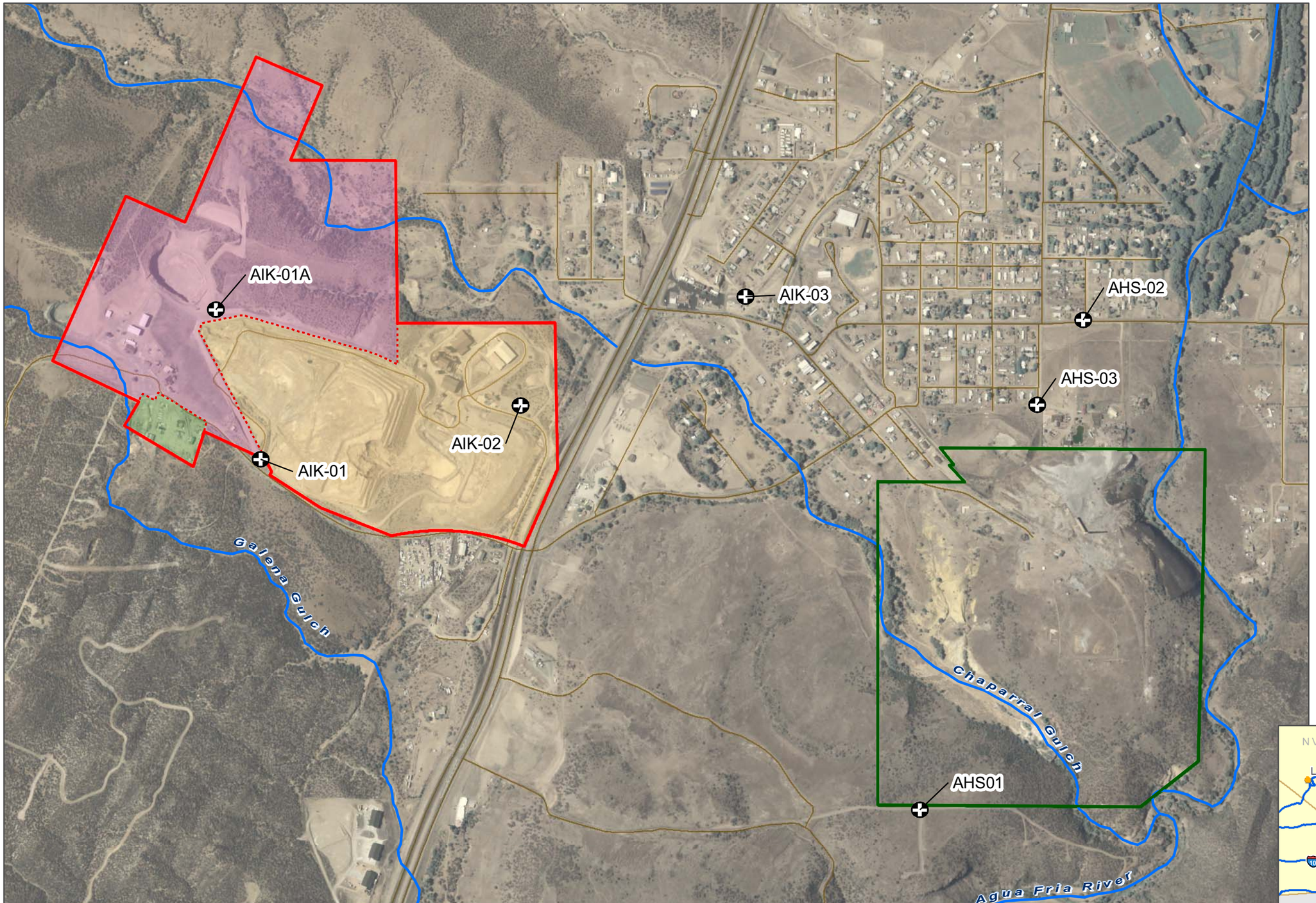



**Wind Speed (Meters Per Second [m/s])**

**> = 5.5 m/s**
**3.3 to 5.5 m/s**
**1.5 to 3.3 m/s**

**Calm winds below 1.5 m/s occurred 54% of the time.**

**1 m/s = 2.24 Miles Per Hour**




## Legend

- Air Monitoring Locations
- "Sample Identification"
- Waterways
  - Chaparral Gulch, Galena Gulch, Agua Fria River
- Road Centerlines
- Iron King Mine
  - Iron King Mine Proper Area
  - Iron King Operations Area
  - Former Fertilizer Plant Area
- Humboldt Smelter

Note:
Boundaries are approximate and may be subject to change pending further investigation

0 980
Feet

EPA Identification Number: AZ0000309013

Aerial Photo Source: Yavapai County GIS, 2007
Basemap Source: ESRI StreetMap, 2006

# Air Monitoring Locations

Air Quality Monitoring

Remedial Investigation/Feasibility Study
Iron King Mine - Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

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