



**Report of Results and Recommendations of
Soil Evaluation of the School Grounds of
The Superior Technological Institute, Castrovirreyna District and Province Huancavelica
Region, Peru**

Sample Collection Date: November 6, 2025

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The Environmental Health Council (EHC) is a U.S.-based nonprofit organization dedicated to identifying, evaluating, and remediating the effects of environmental toxins on affected communities. We work through a combination of scientific assessment, advocacy, and collaboration with communities and authorities to promote environmental and public health.

Within the framework of the EHC's objectives, the soil adjacent to the grounds of the Superior Technological Institute, in Castrovirreyna District and Province, Huancavelica Region, Peru, was sampled and evaluated. The technical evaluation aimed to

- Determine whether contamination from colonial and/or national period refining operations had left behind heavy metal pollution (known as "legacy contamination") and to establish the levels of arsenic (As), mercury (Hg), and lead (Pb) in the soils.
- Compare them with the Environmental Quality Standards (ECAs) established by the Peruvian government (Supreme Decree N° 011-2017-MINAM) for residential/park soils.
- Determine the potential health risk to the student and professional community.
- Propose technical recommendations based on the findings.

Three soil samples were collected on the grounds of the Superior Technological Institute (CAS-R-7 through CAS-R-9). The analysis was conducted using a portable X-ray fluorescence (XRF) spectrometer (SciAps model X550), with results expressed in parts per million (ppm or mg/kg) to evaluate the presence of arsenic (As), mercury (Hg), and lead (Pb).

The analysis prioritized heavy metals and metalloids of high toxicological relevance typically associated with mining activities: arsenic (As), mercury (Hg), and lead (Pb).

The ECAs for soils for residential/park use are as follows:

- **Arsenic (As):** 50 mg/kg (ppm)

- **Mercury (Hg):** 6.6 mg/kg (ppm)
- **Lead (Pb):** 140 mg/kg (ppm)

Soil Sample Results:

The attached table presents the results of the soil assessment.

- **Arsenic (As):** The result from the sample CAS-R-9 shows contamination at 82 ppm, exceeding the ECA by 1.6 times.
- **Mercury (Hg):** Mercury was not detected above the detection limit of about 5 ppm.
- **Lead (Pb):** Lead was not detected above the detection limit of about 5 ppm.

Areas of Concern

Contamination was detected in one of the three heavy metals analyzed (arsenic), located on the grounds of the Superior Institute, representing a potential risk of exposure to students and staff at the school. The results suggest that there may be more widespread contamination on or around the school grounds that warrant further research.

- **Arsenic (As):** One sample result exceeded the ECA. Arsenic is a highly toxic metalloid with proven carcinogenic and neurotoxic effects.

Conclusions

1. Of three samples analyzed on the school ground, one had a result above the ECA for residential/park use for arsenic.
2. A moderate exceedance were detected: arsenic at 1.6 times the ECA.
3. There is a potential health risk to the school community, especially considering the toxicity of arsenic. Because the dataset is very limited, additional assessment on the school grounds is needed to better understand the potential risk of exposure to the school community.

Recommendations

1. Immediately restrict access to the area of the school where the contaminated soil was found.
2. Conduct additional sampling and analysis in different areas adjacent to and on the school grounds where there is exposed soil.
3. Inform educational and health authorities of the findings.

Attachments

Table – Soil Results

Figure – Sample Locations

Soil Sample Analysis Results:
Instituto Superior Tecnológico Público,
Castrovirreyna, Huancavelica, Peru

Sample	Sampling Location Instituto Tecnológico Superior Castrovirreyna	As (ppm)	Hg (ppm)	Pb (ppm)
ISTP CASTRO CAS - R - 7	Instituto Superior	32	ND	34
ISTP CASTRO CAS - R - 8	Instituto Superior	41	ND	44
ISTP CASTRO CAS - R - 9	Instituto Superior	82	ND	70
ECA		50	6.6	140
Nota:	ppm - partes por millón or miligramos por kilogramo (mg/kg) ECA -Estandar de Calidad Ambientao, MINAM, Decrto Supremo No. 011-2017 ND - No Detectado Campos rosados indican excedencia del ECA respectivo			

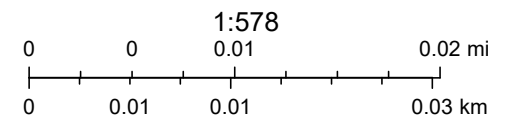
Superior Technological Institute, Castrovirreyna District, Huancavelica Dept., Peru



2/8/2026

- Castro Results with coordinates
- World Imagery

Low Resolution 15m Imagery
Citations



Source: Esri, Vantor, Earthstar Geographics, and the GIS User Community