



**Soil evaluation of the school grounds of IEI No. 1615 Gloriapampa in the
District of Conchucos, Province of Pallasca,
Department of Ancash, Peru.**

Report of Results and Recommendations

Report date: July 19, 2026

Prepared by: Bryn Thoms, RG, Dr. Nicholas Robins, Kevin Quispe Zea

Field team: Dr. Nicholas Robins, Mg. Ruben Espinoza, Kevin Quispe Zea, Dr. Enrique Ecos
(Lima Site Coordination)

Date of sampling: July 10, 2026

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 this framework, the Environmental Health Council analyzed and evaluated the soil of the school grounds of the Educational Institution No. 1615 Gloripampa in the District of Conchucos, province of Pallasca, department of Ancash, Peru.

The technical evaluation aimed to:

1. Determine whether contamination from historic mining operations—including mineral processing and refining activities dating from the 18th century —has left heavy metal pollution (*legacy contamination*).
2. Quantify concentrations of heavy metals—specifically lead (Pb), mercury (Hg), and arsenic (As) that may affect children in Educational Institution No. 1615 Gloripampa.
3. Compare these concentrations with the Environmental Quality Standards (ECAs) established by the Peruvian government (*Supreme Decree N° 011-2017-MINAM*) for residential/park soils.
4. Identify any critical areas within the school requiring attention, assess potential health risks to the student and staff community, and propose technical recommendations based on the findings.

8 soil samples were analyzed in the following spaces: 1) South Playground and 2) North Playground

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 lead (Pb), mercury (Hg), and arsenic (As). Additional metals were analyzed by the XRF but only the metals of interest, due to their association with legacy mining impacts and because of their toxicological relevance, are presented in this report.

The ECAs for residential/park soils are:

- Arsenic (As): 50 mg/kg (ppm)
- Mercury (Hg): 6.6 mg/kg (ppm)
- Lead (Pb): 140 mg/kg (ppm)

The results of the analysis of the samples are presented in the tables presented below:

Sample	Sample Location	As (ppm)	Hg (ppm)	Pb (ppm)	Exceeds ECA
CONCHU26-R-1	South Playground	62	ND	35	As
CONCHU26-R-2	South Playground	56	ND	60	As
CONCHU26-R-3	South Playground	93	ND	64	As
CONCHU26-R-4	South Playground	27	ND	35	None
CONCHU26-R-5	Average	59	ND	49	As

* ppm = parts per million.

* ECA = Environmental Quality Standard.

* ND = Not detected at approximately 1 ppm.

Sample	Sample Location	As (ppm)	Hg (ppm)	Pb (ppm)	Exceeds ECA
CONCHU26-R-6	North Playground	63	ND	67	As
CONCHU26-R-7	North Playground	55	ND	53	As
CONCHU26-R-8	North Playground	86	ND	52	As
CONCHU26-R-9	North Playground	ND	ND	57	None
CONCHU26-R-10	Average	51	ND	57	As

* ppm = parts per million.

* ECA = Environmental Quality Standard.

* ND = Not detected at approximately 1 ppm.

As results in soil range from 27 to 93 ppm and 6 out of 8 samples exceed the ECA (50 ppm.). The highest concentration was detected at sample location CONCHU26-R-3 at 93 ppm which exceeds the ECA by 1.86 times.

Hg in soil were all non-detect.

Pb results in soil range from 35 to 67 ppm, which are all below the ECA of 140 ppm.

Areas of concern:

The following summarizes the results:

1. *Localized contamination in the school:* Soil contamination in the educational institution is not homogeneous, but generally below the ECAs or if above, just slightly above. As in sample CONCHU26-R-3 at 93 ppm suggests that there may have been mine-related contamination in this area. It should be noted that when the playground sample results are averaged, the concentration is 59 ppm, which is just above the ECA.
2. Student and staff health risk: The south playground (CONCHU26-R-3) presents some concern, but limited due to the lower levels of contamination identified in other samples in the area. Contact with and exposure to arsenic in children and adolescents can cause irreversible neurological damage, attention deficit and decreased IQ.
3. There are elevated health risks for the kindergarten students who use the facility spaces.

Conclusions:

1. Areas were identified within the Educational Institution No. 1615 Gloripampa that exceed the ECA for As.
2. The playground area (CONCHU26-R-1, CONCHU26-R-2, CONCHU26-R-3, CONCHU26-R-6, CONCHU26-R-7 and CONCHU26-R-8) are of some concern, with levels just above the ECA for 1 of the two metals analyzed. Appropriate action by the competent authorities is required to manage this risk, prioritizing the protection of the health of children, adolescents, staff and the community in general.

Recommendations:

1. Restrict access to the playground areas (CONCHU26-R-1, CONCHU26-R-2, CONCHU26-R-3, CONCHU26-R-6, CONCHU26-R-7 and CONCHU26-R-8) contaminated with As.
2. Conduct additional testing using fixed laboratory methods such as ICPMs, or AAS to support the accuracy of the XRF results. Additional testing of the extent of the contamination using XRF analysis may also help define how much area is contaminated and may help provide more detail on where mitigation needs to take place.
3. Cover the contaminated area with clean materials, placing layers of clean soil and geotextile, followed by grass, to avoid direct contact and the generation of dust.
4. Notify the authorities of the educational institution and parents about the findings and preventive measures and the actions to be taken.
5. Inform the relevant local, regional and national authorities of the findings.

Attachment: Figure – Sample Locations



0 5 10 20 Meters

Soil Sample Locations
July 2026
IE 1615 Gloriapampa
Conchucos, Ancash

