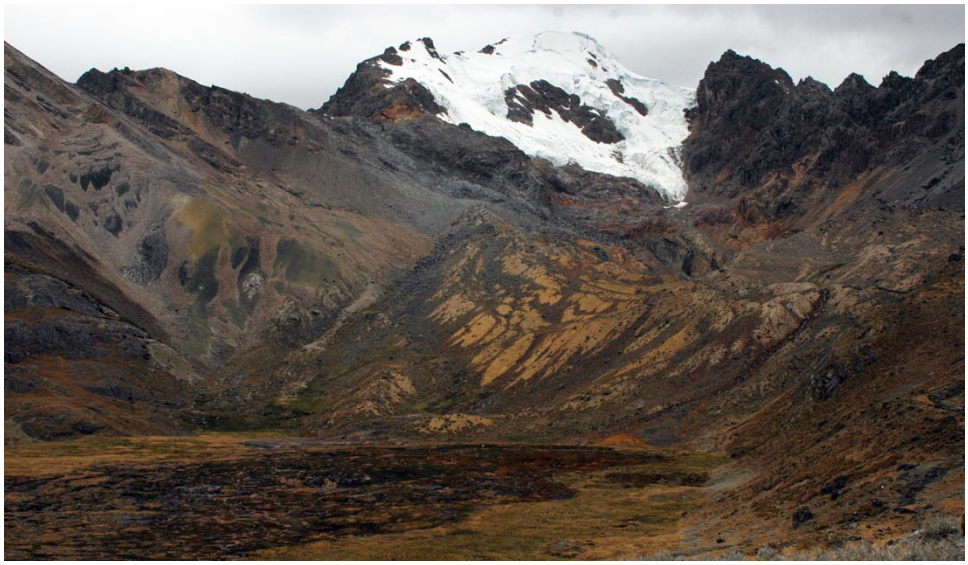
REPORT ON THE FOLLOW-UP OF THE DIABLO MUDO EXPLORATION PROJECT

NEVADO N^{o} 1 and NEVADO N^{o} 2



Diablo Mudo from Quashpapampa. Photo: Timothy Norris

November 2011

Huaraz – Peru

REPORT ON THE FOLLOW-UP OF THE DIABLO MUDO EXPLORATION PROJECT

NEVADO N° 1 y NEVADO N° 2

"Año del Centenario de Machu Picchu para el Mundo"
"Año Internacional de los Bosques"

NOTE: THIS IS A TRANSLATED AND SHORTENED VERSION OF THE ORGINAL REPORT THAT WAS PROVIDED TO THE FOLLOWING PUBLIC AGENCIES, NGOs, AND COMMUNITIES IN PERU IN NOVEMBER OF 2011.

MINEM – Ministry of Energy and Mines

ANA – National Water Authority (Ministry of Agriculture)
– ANA Barranca Office

MINAM – Ministry of the Environment

SERNANP – National Service of Natural Protected Areas (Ministry of the Environment)

OMBUDSMAN OFFICE PERU

CIA Compania Mineria Raura S.A. (private company)

ECOAN – Ecosystemas Andinas (NGO)

CDH – Centro Desarrollo Huayhuash (NGO)

PACLLON and HUAYLLAPA – local communities

FOR THE ORIGINAL VERSION IN SPANISH PLEASE CONTACT: TIMOTHY NORRIS tibben@ocf.berkeley.edu

I. INTRODUCTION

The mining company CIA Mineria Raura S.A., responsible for the exploration project Diablo Mudo Nevado 1 and Nevado 2, was realizing exploration activities until September 2011 under Category I regulations as found in the Supreme Decree 020-2008-EM. The mineral concessions [sub-surface rights] where they are developing their activities are named "Nevado No 1 y Nevado No 2" with the codes 01-03472-95 and 01-03471-95 respectively.

The Diablo Mudo Project is located in the districts of Copa in the Province of Cajatambo in the Department [state] of Lima, and the district of Pacllon in the Province of Bolognesi in the Department of Ancash.

The follow-up of the project located in the Cordillera Huayhuash Reserved Zone took place on September 19th 2011, with the presence of Timothy Norris from the Environmental Studies Department at the University of California Santa Cruz, Mr. Oswaldo Gonzales Depaz representing Huascaran National Park (SERNANP), Mr. Lindolfo Esteban Mendoza from the community of Pacllon, and two environmental engineers from the mining company Mineria Raura S.A.

II. OBJECTIVE

To undertake the second follow-up of the Diablo Mudo Exploration Project located in the Cordillera Huayhuash Reserved Zone.

III. LEGAL ANTECEDENTS [omitted for this report]

IV. OBSERVED SITUATION

1. The work group left Pacllon and walked up Achin watershed, and then up the Ochsapata watershed, and finally up the Qashpapama watershed on September 19th 2001 in order to arrive at the perforation site located at the coordinates UTM ZONE 18S EAST 282596 NORTH 8861985 (PSAD 56) (ANNEX A Locator Map and ANNEX C Photo 6). It was observed that the exploration activity was paralyzed.

2. At the perforation site it was observed that the mud settling ponds now have impermeable membranes (ANNEX C Photo 7) much like the actual perforation site also has impermeable membranes (ANNEX C Photo 8). Apparently the recent installation of these membranes is due to the finding No3 from the report No 020-2011-SERNANP-DGANP-PNH "Seguimiento al Proyecto de Exploración Diablo Mudo Nevado N^{o} 1 y Nevado N^{o} 2." [the first follow-up report from earlier in the year]. Finally it was observed that the mud settling ponds were empty (ANNEX C Photo No 9) which begs the question: where is Mineria Raura S.A. disposing of the mud and water?

3. It was also observed that the installation has barrels for three kinds of solid wastes (ANNEX C - Photo 10).

4. The group then left the perforation site to take water samples. On the way back down the group found a wetland covered with a greasy substance which indicated the possible presence of diesel (ANNEX A Locator Map y ANNEX C Photos 1-5). According the senses of smell and taste the water in the wetland was contaminated with diesel, but because the work group had not anticipated this observation, no one had a bottle to take a sample; hence there are no laboratory results to confirm the presence of diesel at this location. Nevertheless, in the opinion of Timothy Norris, Mr. Oswaldo Gonzales (SERNANP), and Mr. Lindolfo Esteban Mendoza (Pacllon) the substance was diesel. According to the two environmental engineers from the mine, the substance was most likely to be a secretion or other biological product from some plant in the area.

5. On the way back to Pacllon, Timothy Norris and the engineers from the mining company Raura S.A. took several water samples taking both recordings of field analysis and samples taken in bottles to have a laboratory analysis run at a later time. Timothy Norris took four samples identified with the codes PM-04, P1, PM-09, and P2 (ANNEX A Locator Map). The stations PM-04 and PM-09 are identified by the Exploration Project Diablo Mudo and P1 and P2 are stations identified by the project "New Conservation Spaces in the Andes" undertaken by the Huayhuash Development Center (local NGO). The field results are found in the following table:

Results from the Field Measurements

Station Code	Body of Water	Time	Temp °C*	pH*	Cond µs*	Sal ppm*	STD ppm*	Oxigeno Disuelto mg/l **	*Enterococcus* NMP/100ml
PM-04	Qashpapampa	3:15 PM	8.8	4.15	662	322	472	6.69	1
P1	Qashpapampa	4:30 PM	7.9	5.21	415	197	295	6.0	1
PM-06	Ocshapata	5:00 PM	7.9	5.66	306	143	217	6.08	-
P2	Ocshapata	6:45 PM	9.0	6.85	220	104	156	6.56	3

* measured with PCSTestr 35 Multi-Parameter (OAKTON Instruments)

** measured with ExStik II Dissolved Oxygen (EXTECH Instruments)

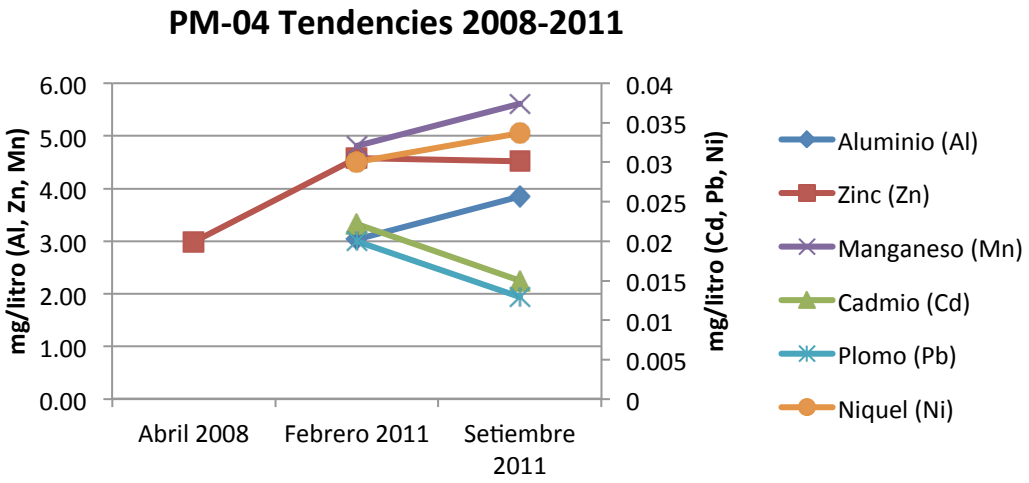
6. The results from the laboratory (Envirolab Peru S.A.C.) are reproduced in ANNEX B. See finding No 1 for an analysis of the results compared to the maximum permissible limits for mining activity (D.S. 010-2010-MINAM limits for any moment in time) and see finding No 2 for an analysis of the results compared to the National Drinking Water Standards (D.S> 002-2008-MINAM category 1 [human consumption]). A brief summary of the results and the tendencies over time observed for monitoring stations PM-04 and P2 follow [previous monitoring and results from May 2010 and May 2011 are explained in the LEGAL ANTECEDENTS section].

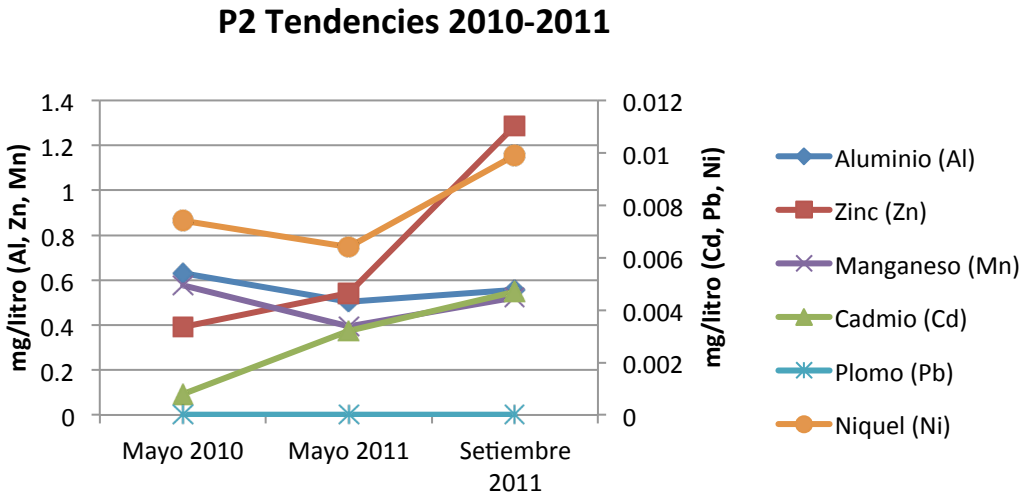
   In the first graph that follows it is possible to observe the tendencies over time for the monitoring station PM-04. First, for aluminum, nickel, manganese and zinc the concentrations are rising over time. Second, the concentrations for cadmium and lead are going down over time.

   In the second graph it is possible to observe the tendencies over time for the monitoring station P2. First, for zinc, nickel, and cadmium the concentrations are rising over time. Second, the concentrations of lead, aluminum, and manganese are either staying level or dropping over time.

   THERE IS NO WAY TO MAKE A CONCRETE CONCLUSION ABOUT WHICH FACTORS PLAY THE PRINCIPAL ROLE IN THESE TENDENCIES OVER TIME. The most probable explanation is that the mining activity is a factor in the changes observed, but that contamination from natural sources such as the annual water cycles and the high concentrations of certain elements found in the environment also could be a factor. These results call attention to the need for a sustained monitoring effort to better understand these observations.

   These results also call attention to the first analysis realized by Mineria Raura S.A. in 2008 was not completed for category 3 [agricultural consumption] or category 4 [animal consumption] (D.S. 002-2008-MINAM); better said that the analysis presented by the company was missing observations for various parameters (still missing are the parameters for category 1 from D.S. 002-2008-MINAM). It can also be observed that the pH measured on September 19th 2011 at station PM-04 was 4.5 (very low), but no data for this parameter has not been presented by the mine at the time of writing and thus it is not possible to make an analysis of this parameter over time for this station. Finally it is observed that Mineria Raura S.A. has not performed its trimestral monitoring.





V. FINDINGS

The following findings correspond to the environmental impacts observed during the visit which merit implementation of corresponding mitigation measures with the goal to prevent, correct, rehabilitate and recuperate the degraded or deteriorated areas which can be found in the Cordillera Huayhuash Reserved Zone.

Finding N° 1
At the monitoring stations PM-04, P1, and PM-06 the parameters for zonc (zn) are outside of the maximum permissible limits for any moment in time for mining activity (D.S. 010-2010-MINAM).

Action to Consider N° 1
The competent state authority should take action as necessary. The company Mineria Raura S.A., responsible for the activities at Diablo Mudo, should implement and action-plan to mitigate this situation.

Finding N° 2
At the stations PM-04 and P1 the results for pH, aluminum (al), cadmium (cd), manganese (mn), nickel (ni), lead (pb), and zinc (zn) are outside of the National Standards for drinking water (category1 D.S. 002-2008-MINAM). At the station PM-06 the results for pH, aluminum (al), cadmium (cd), manganese (mn), lead (pb), and zinc (zn) are outside of the National Standards for drinking water (category1 D.S. 002-2008-MINAM). At the station P2 the results for Aluminum (al), cadmium (cd) and manganese (mn) are outside of the National Standards for drinking water (category1 D.S. 002-2008-MINAM).

Action to Consider N° 2
The competent state authority should take action as necessary. The company Mineria Raura S.A., responsible for the activities at Diablo Mudo, should implement and action-plan to mitigate this situation.

Hallazgo No 3
At the site of the un-confirmed diesel spill a greasy substance was observed that smelled and tasted like diesel.

Action to Consider No 3
The competent state authority should take action as necessary. The company Mineria Raura S.A., responsible for the activities at Diablo Mudo, should restore the wetland at this site.

VI. CONCLUSION

1. There is evidence of environmental impacts from the mining activity undertaken by the company Mineria Raura S.A. that go beyond the objectives for the Cordillera Huayhuash Reserved Zone and the Private Conservation Areas of Pacllon y Huayllapa, among which concern the water that originates at the headwaters of the Achin watershed which constitutes a primordial element of economic activity in the region (tourism, agriculture, and ranching).

VII. RECOMMENDATION

1. Provide a copy of this report to the Office of Environmental Evaluation and Fiscalization – OEFA of the Ministry of the Environment, with the objective that actions are considered to force compliance with existing regulations.
2. Provide a copy of this report to the Ombudsman Office with the objective that actions are considered to force compliance with existing regulations.
3. Provide a copy of this report to the Director of Water Quality in the National Water Authority – ANA with the objective that actions are considered to force compliance with existing regulations and that the current categorization for the rivers in the Cordillera Huayhuash Reserved Zone is changed from category 3 (agricultural) to category 1 (human consumption) (DS 002-2008-MINAM) due to the consumption of water in the Huayhuash by local people and tourists (over three thousand tourists visit the area each year).
4. Provide a copy of this report to the Local Water Authority Office in Barranca – ALA Baranca with the objective that actions are considered to force compliance with existing regulations.
5. Provide a copy of this report to the General Direction of Mining of the Ministry of Energy and Mines with the objective that actions are considered to force compliance with existing regulations, as well as provide a copy of this report to Minieria Raura S.A.

Huaraz, November 15 2011

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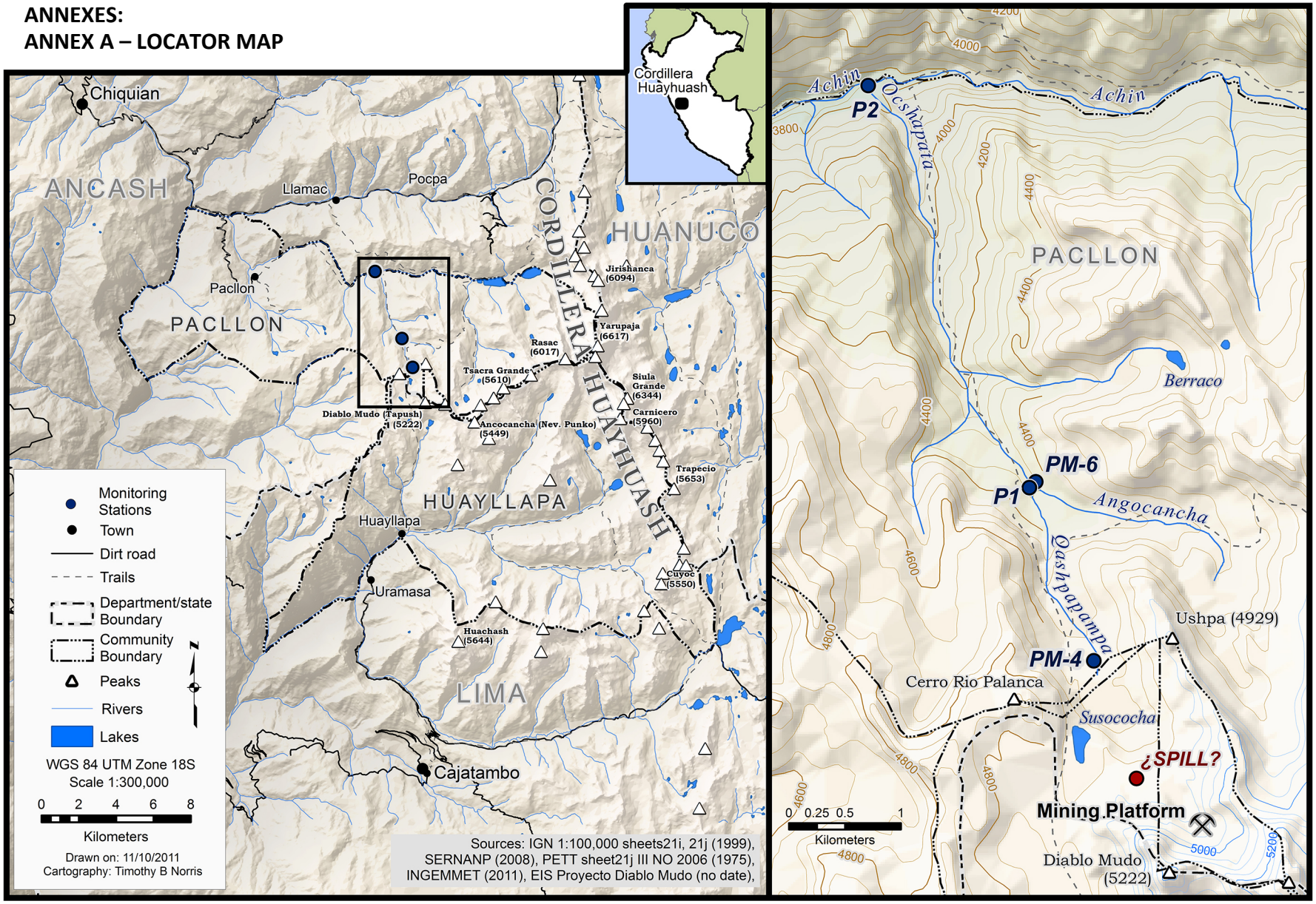
VIII. ANNEXES:

ANNEX A – LOCATOR MAP



ANNEX B – ANALYSIS REPORT “No 1109381” – ENVIROLAB [omitted for this translation]

ANNEX C – PHOTOS (all photos credit to Timothy Norris)

PHOTO 1: The site of the possible spill– see ANNEX A – LOCATOR MAP

PHOTO 2: Evidence of the greasy substance at the possible spill site

PHOTO 3: Evidence of the greasy substance at the possible spill site

PHOTO 4: Evidence of the greasy substance at the possible spill site

PHOTO 5: Evidence of the greasy substance at the possible spill site

PHOTO 6: The perforation site, observe the lack of activity (paralyzed)

PHOTO 7: The perforation site with impermeable membranes

PHOTO 8: The mud settling pons with impermeable membrane

PHOTO 9: An empty mud settling pond

PHOTO 10: Solid waste barrels