

## **PAL RESPONSE TO COMMENTS BY BRUNO CHAREYRON, HEAD OF CRIIRAD**

A copy of the CRIIRAD report was forwarded to the Company on Monday, 16 February 2015.

The so-called “Commission for Independent Research and Information on Radioactivity” (**CRIIRAD**) is a French non-government organisation (**NGO**) which specialises in monitoring the nuclear industry.

CRIIRAD describes itself in the report as a “partner” of the Malawian NGO, Citizens For Justice (**CFJ**), which is aligned with international anti-nuclear NGOs and has been in the forefront of campaigning on uranium mining in Malawi since 2006, including the recent fear-mongering campaign run by the Natural Resources Justice Network (**NRJN**), of which the national coordinator is CFJ’s executive director, Reinford Mwangonde.

Therefore, comments made by Bruno Chareyron, the head of CRIIRAD, who is currently in Malawi on a visit sponsored by CFJ, should be considered as statements of an NGO with partisan connections to a hostile NGO coalition - and not as the observations of an impartial “independent expert.”

As with any NGO-sponsored report that comments on the policies, procedures or operating practices of the Paladin Group of Companies, Paladin will fully analyse the report and publish a detailed response, correcting factual inaccuracies and responding to any misleading statements. The Company’s response will be provided to the Government of Malawi (**GoM**) and to the media.

In the meantime, you will note that, while the Report is dated 12 February 2015, it is based on sampling conducted by CRIIRAD and CFJ in the vicinity of Kayelekera Mine in May 2012. The NGOs concerned did not contact the Company beforehand.

CRIIRAD states in its report that “the sampling programme was very limited and preliminary (and) it should not be considered as a comprehensive radio-ecological study.”

**Neither CRIIRAD nor CFJ has explained why, if either organisation was greatly concerned about the environmental situation in the vicinity of Kayelekera Mine at the time, they waited for more than 2-1/2 years before publishing their findings.**

The report has been released to coincide with Mr Chareyron’s brief visit to Malawi for the purpose of participating as the NGO’s nominated representative in the GoM’s monitoring of surplus water treatment and release at Kayelekera Mine.

It is regrettable that - rather than bringing an objective and analytical perspective to the debate - since arriving in Malawi this week, Mr Chareyron merely has repeated several of the misleading and sensationalist claims made in recent weeks by local NGO activists opposed to the release of treated surplus run-off water stocks at Kayelekera Mine.

This is particularly disappointing considering the fact that Mr Chareyron made his comments after visited Kayelekera Mine on Tuesday, 24 February 2015, when he was given the opportunity to see for himself preparations and safeguards made for the water release programme and to discuss associated issues with Company and GoM environmental experts (officers from the Environmental Affairs Department and Water Resources Department were present). In addition, Mr Chareyron has been reported as making unfounded and alarmist claims concerning radiation risks to employees and the community, which is unfortunate and unhelpful.

Mr Chareyron has referred to spillage from the run-off dam on 05 January 2015, which did not occur, and to the Company having “a huge accumulation of radioactive waste at the mining area,” which is simply untrue.

Mr Chareyron questioned the decision by the GoM to use the World Health Organization (**WHO**) guideline for uranium content in drinking water as the standard for the discharge licence granted to Paladin, although this is widely

recognized as a benchmark. Paladin believes that if Mr Chareyron has an issue with this standard, it is a matter he should properly take up with the WHO.

Mr Chareyron also made various confrontational remarks concerning alleged radiation-associated health risks faced by Kayelekera employees and the community around Kayelekera Mine, which Paladin refutes.

The International Commission for Radiological Protection (**ICRP**), to which Mr Chareyron refers, is the international body recognised to determine the effects of radiation on people and the environment. The ICRP makes recommendations, which governments then adopt to legislate the safe use of ionising radiation in various workplaces, including uranium mines. In Malawi, the Atomic Energy Act and the Atomic Energy Regulations specify those conditions for occupational exposure. The relevant portion of these regulations (*Atomic Energy Regulations, 2012, Schedule 2*) state that:

The occupational exposure of any worker shall be so controlled that the following limits are not exceeded:

- a) an effective dose of 20 mSv per year averaged over five consecutive years (the start of the averaging period shall be coincident with the first day of the relevant annual period starting from the date of entry into force of the regulations, with no retroactive averaging);
- b) an effective dose of 50 mSv in any single year.

Please note that the limit is 50 mSv in any single year, except that - over five years - the average should not exceed 20 mSv per year. These dose limits apply to employees at the Kayelekera Mine.

Compared with the radiation dose limit of 50 mSv in any single year, the average independently-measured dose level for a Designated Worker at Kayelekera Mine in 2013 was 3.2 mSv, with the maximum dose for a work group being 4.7 mSv – well within the accepted radiation exposure limit set under Malawi law in compliance with the ICRP standard.

The United Nations Scientific Committee on the Effects of Atomic Radiation (**UNSCEAR**) has determined that the average radiation dose to members of the public from natural radiation worldwide ranges from one to 13 mSv per year, with a median of 2.4 mSv per year.

Therefore, employees at Kayelekera Mine are being exposed to radiation levels that are much less than the international limit for occupational doses and which are comparable to dose levels that can be found - due to natural background radiation - in many other parts of the world. To suggest that Kayelekera Mine employees, or the community, should require treatment or compensation for health risks associated with exposure to such low level occupational radiation is simply imprudent and misleading.

Commenting further on radiation matters, Mr Chareyron professes to have been shocked to find a security guard on duty near the Kayelekera mining area, sitting on a chair that he said measured “2000 counts per second on a Geiger Mueller counter,” a reading Mr Chareyron described as way above normal levels.

In reality, such measurement is meaningless when measuring radiation doses. Measurements using an appropriate dose rate meter at the spot where the guard was observed indicated a radiation dose rate of 1.67 micro-sievert/hour ( $\mu\text{Sv/h}$ ).

This was an exceptional observation of the guard sitting at this spot, due to maintenance work underway on the day, as the normal position for this guard station is in a specially-constructed hut which gives clear line of sight of any potential intruder.

Security guards normally work on rotation for 12 hours per week at this location and the dose rate in the hut is  $0.15 \mu\text{Sv/h}$ . This implies that a security guard working for 12 hours/week, year-round, would receive a dose of  $94 \mu\text{Sv/year}$ .

If the security guard sat at the location where he was observed for 52 weeks, he would receive an annual dose of 1000  $\mu\text{Sv}$ , however this is not a normally occupied position and this would be a maximum dose. These readings include natural background.

The average annual limit for members of the public, as defined by the *Malawi Atomic Energy Act*, is 1000  $\mu\text{Sv}$ , with the proviso that - in any one year - they may receive 50,000  $\mu\text{Sv}$ . This can be compared with the UNSCEAR finding that members of the public receive a median of 2,400  $\mu\text{Sv}$  per year from natural background.

In summary, the employee in question was not exposed to excessive radiation, as Mr Chareyron contends. The dose was within acceptable limits and comparable to dose exposure from natural background radiation sources.

*26 February 2015*