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**CRIIRAD Note**  
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**Norway / Halden / iodine 131**

## Clarification of CRIIRAD about the releases of a nuclear reactor in Norway

### Confusion

There has been confusion for a few days on social networks, and messages that are very Worrying as *“Alert in this day (12 March 2017) it is learned that Norway has contaminated all of Europe with radioactive iodine 131 for several weeks (it is even said that contamination began at the end of October)..”*. This is a confusion between two events:

Iodine-131 (artificial radioactive isotope) has been detected at low levels in the ambient air of several European countries in **January 2017**. The exact origin of iodine-131 is not known and several hypotheses are possible. See CRIIRAD press release of [February 14, 2017](#).

There was an incident on a nuclear reactor in Norway in October 2016, but there is not, to our knowledge, an Incident or Accident currently operating in Norway and the measuring stations whose the results are published on the website of the European network [EURDEP](#) do not show currently abnormal radioactivity in Norway or on nearby countries.

### Releases of iodine 131 from a Norwegian reactor in October 2016

There was, on 24 October 2016 at 13:45 hours a significant incident on the IFE nuclear reactor at Halden South – East of Oslo in Norway, when handling the spent fuel. The Norwegian Radiological Protection reported this incident in a Press release of [25 October 2016](#).

This incident, which led to the evacuation of the personnel and resulted in radioactivity released into the atmosphere. The [Norwegian authorities](#) have estimated the release to 150 million becquerels for iodine 131 and 24 million becquerels for iodine 132. It should be noted that the document does not specify how these estimates have been carried out, nor their level of reliability. It is surprising that Authorities did not show the status of other releasable radioactive substances (tritium, Carbon 14, radioactive rare gases).

Fortunately, the situation has been finally kept under control. The “incident” of October 2016 poses many Safety issues (Origin of the incident), lack of transparency (the operator declared the incident 20 hours later), insufficient monitoring data (No evaluation of all Radioactive discharges). The Norwegian NGO [Bellona](#) had expressed concern in 2004 about the Safety and Denounced the escapes of Heavy water and the high tritium releases (Radioactive isotope of hydrogen).

In the case of discharges of iodine-131 of 24 October 2016, in Norway, measurement stations of iodine 131 in particulate form located at Osteras, about 100 kilometers north – West of Halden and Arland, to 500 kilometers to the north had not highlighted measurable impact (data available on the website EURDEP).

Iodine-131 particulate has indeed been detected on the air filters of the October 17 to 24, 2016 with values of the order of **0.37 to 0.45  $\mu\text{Bq}/\text{m}^3$** , but the measurement period stopped Around 6am so It was before the official time of release. On the following two weeks , published levels of Iodine 131 were lower than detection limits between  $<0,3 \mu\text{Bq}/\text{m}^3$  and  $<3.6 \mu\text{Bq}/\text{m}^3$ .

These results raise a number of questions.

It is surprising, for example, to note the absence of sampling for the Osteras station during the period of supposed releases. Indeed, the analyzes focus on a first filter for the period from 17 to October 24th at 6:34 am, then a second filter of 25 October at 11 H30 to 26 October at 10 H49. There is therefore no measure from October 24 at 6:35 am to October 25 at 11:29 am?

It is also possible to deplore the absence of measurement of iodine-131 in gaseous form which is in many cases predominant by contribution to the particular form. And of course, it should be emphasized that the measuring stations are at a great distance from the plant and do not count of the air quality within a radius of a few kilometers.

To date, there is nothing to make the link between the iodine 131 from the Halden reactor in Norway in October 2016 and the detection of iodine 131 in the atmosphere of European countries in January 2017.

Let's remember that the Half-life of iodine-131 is 8 days. The activity of iodine-131 rejected on 24 October 2016 would therefore be divided by a factor of 1300 to 15 January 2017. In addition, the highest levels of particulate iodine 131 detected in Europe in January 2017 were in Poland ( $5.9 \mu\text{Bq}/\text{m}^3$ ).

However, it would be desirable for independent analyzes to be carried out in the vicinity of the Halden reactor in order to assess the levels of exposure of local residents (air, soil, precipitation and food chain analyzes).

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