



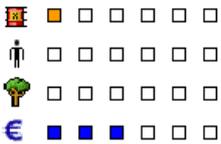
Communicating under difficult circumstances



15 Soot from fire

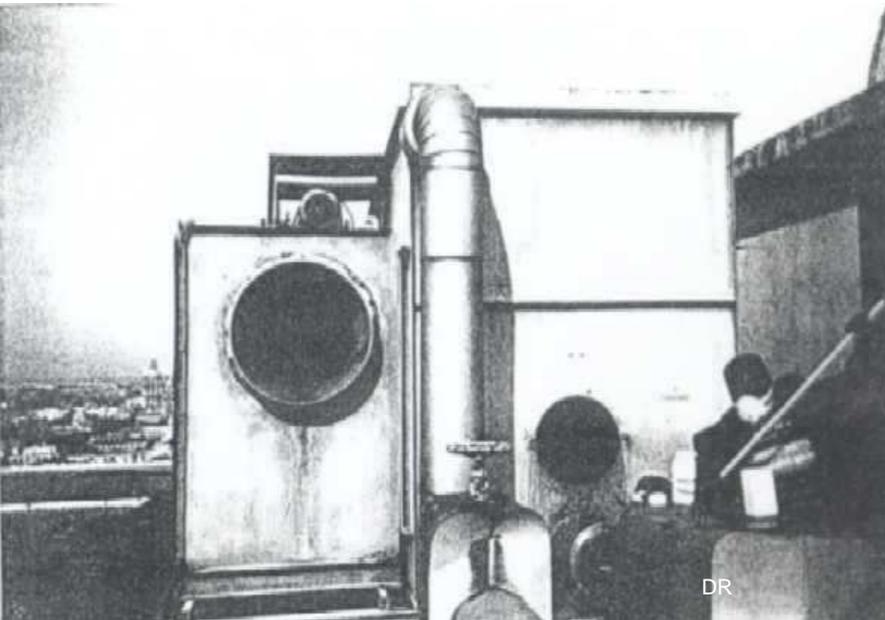
ARIA 33299 - 30/07/2007 - 42 - RENAISON

10.72 – Manufacture of biscuits, rusk and hard baked goods



A fire broke out at around 2.00 am in a 10,000 m² cake and confectionery manufacturing plant. The video surveillance company informed the maintenance manager. Around hundred fire-fighters arrived onsite with 27 fire engines. The fire-fighters cut off the gas and electricity supply, stopped traffic in the D9 by-road to pump water in a pond and brought the blaze under control at 6.00 am. Fire-fighters stayed back to monitor for any possible restart of fire. The mayor and staff from the press were on site. The retention tank and the pre-treatment station were full and thus could not hold the 200 m³/h of fire water. This flowed outside the site into a canal receiving rainwater from the site that drained into

the OUDAN River. The rescue services set up a straw-bale dam. 90% of the plant was destroyed especially due to the presence of significant amounts of combustible material (sugar, flour, carton, etc.). The cooling units, functioning with R404a (mix of fluoroethanes) were impacted releasing hydrofluoric acid but the stocks (silos) of 60 m³ of sugar and 65 m³ of flour along with the hydrocarbon tanks and the site's transformer remained intact. No victims were reported but the accident resulted in the technical unemployment of 120 people. On 01/08, the public water body management and surveillance authority detected no immediate impact on the canal. Appropriate resources will be deployed to treat the debris. The soot and other material generated by the fire fell onto the neighbouring gardens and fields in a 3 km wide and 6 to 10 km long lane causing worry to the residents. The inspection authorities for classified facilities ordered the operator to carry out quality surveillance measurements in the zone south-east to the site likely to be impacted (total hydrocarbons, PAH, halogenated VOC, heavy metals, dioxin ...). The results of the analysis of the soil and plants for human and animal consumption indicated levels below the threshold values but the canal water and sediments were contaminated by dioxin, PAH and heavy metals (Arsenic, lead and Zn). The results of the analysis carried out in January 2008 showed that the pollution of the water body, due to the fire of the plant, was cleared and that some of the pollutants detected previously are part of the background of the environment. The operator drafted a plan to assess the pollution impact on sediments and assess the environmental quality around the production site. The safety studies of the site did take into account a generalised fire in the site and planned measures to promptly control the fire which was not the case (15 h to extinguish the fire). The factory is rebuilt at the same place 18 months later at a cost of 15 Meuros: the establishment is equipped with a fire detection, sprinklers and a much bigger retention for firewater (840 m³). A short circuit in an electrical cabinet (installed in 1980) has triggered the fire.



@ Mercury pollution

ARIA 35840 – 01/22/2008 - BELGIUM - ANDERLECHT

24.54 – Smelting of other non ferrous metals



On the 21 to 22/01 and 24 to 25/01 nights, the air monitoring stations continuously recorded mercury (Hg) concentrations as high as 1 micro g/m³, i.e. 1,000 times greater than the WHO threshold for chronic exposure.

Laborious research involving significant human and material resources including a mobile laboratory helped identify the source of pollution: the incinerator of a metal foundry producing lead bullions from old batteries. A concentration of 9,300 mg/m³ of mercury was measured outside the incinerator's stack that was stopped shortly after.

An enquiry was conducted. The operator was unaware of the origin of pollution since the company did not recycle mercury. The environmental police sealed the batches of waste in question (batteries from France) to check for any possible mercury pollution. The waste was then treated using an adapted process. A specialised company carried out a land pollution survey around the plant to assess the impact of pollution on health and environment. The environmental departments feared a possible pollution of some kitchen garden areas and the consequential risk to the food chain.

Besides the fact that the awareness resulting from the incident led professionals in the battery recycling sector to raise questions on securing their supplies, concrete preventive measures were taken in the company during the various stages of its processes to avoid such accidental spills from reoccurring: increasing accountability among suppliers, checking incoming material with a manual mercury detector, installing a flue gas scrubbing device using activated charcoal, checking the efficiency of gas scrubbing by constantly monitoring the mercury level in the flue, drafting procedures on taking action and informing authorities if atmospheric emission standards are crossed, etc. There measures were made part of the new operating license of the company that stipulated even more stringent emission standards. The company was to be heavily fined by the administrative authorities.

Communicating under difficult circumstances

“Laborious research” involving significant human and material resources was required to identify the origin of the mercury pollution peaks detected in Brussels in January 2008.

Any symptomatic event provides the occasion to carry out investigations to assess the potential risks and stakes. As in the case of the 2nd accident presented (soot from fire), identifying the nature of the materials or elements involved (ARIA 8319, 9729, 13666, 20493...) may require considerable time and energy and even acquiring new knowledge. The discovery of the Legionella bacteria in 1977 called into question all previously propounded theories (ARIA 26108).

Several obstacles may be encountered during the research:

- Even though the persistent, bioaccumulable and poorly biodegradable nature of some substances (PCB, PCT, PCP, lindane, dioxins and other organochloride compounds, metals, radioactive material, etc.) reveals chronic or accidental pollution (ARIA 20493, 29977, 35035, 35874, etc.), it may be hard to identify the source of the detected anomalies due to the historical precedence of the events (ARIA 2257, 8984, etc.)
- Investigations are complicated by the often insufficient knowledge of the locale concentrations (average values, etc.) and the potential sources adding to the pollution. The diffuse risks, as well as the multitude of facilities and equipment in question also widen the number of causes. Legionellosis once again is a rather good example: ARIA 18511, 21993, 23125, 23194, 23246, 25551, 26002, 26106, 26113, 26118, 29883, etc.
- Atmospheric pollution of unknown or poorly identified origin including odours also illustrates this type of problem: ARIA 9729, 20310, 26008, 26438, 27109, etc. However, water, soil, water tables, “confined” environments that are theoretically easier to understand, may also fall prey to pollution of unknown origin especially following a separation network failure (rain water / waste water), interconnection of headers, etc. (ARIA 2257, 8319, 8984, 13029, 13666, 21012, 22138, 24994, 25676, 28171, 28805, 28905, 30261, 32305, 33672, 33712, 34761, etc.). The sudden, discontinuous or random emission of waste can also make investigations harder (ARIA 2257, etc.)
- The need to carry out measurements on cultivations, food products or samples and run biological tests on employees, rescue workers, investigators, reporters or the adjoining population can worsen the fears and concerns of the society and authorities (ARIA 18511, 20493...).

Despite the hardships involved in describing accident situations and identifying the possible effects, it is up to those who hold information, especially authorities, to take the initiative of bringing critical situations to the notice of the public. As far as possible, reference values and the initial risk mitigation measures taken or planned must be stated alongside the description of anomalies so that the affected population can form an opinion on the possible health or environmental risks and take the necessary precautions if required (ARIA 29977, 30269, 35035, 35874, etc.).

Concern and partial understanding of a situation, such as the “suspense” in carrying out investigations must not be a stumbling block in sharing even incomplete or adverse information likely to draw public attention. The official information campaign held in the beginning can be gradually supplemented with others as the investigation progresses. Incidentally, since measuring techniques have become very sophisticated and health and environmental checks are becoming increasingly stringent, the anomalies involving persistent substances are more often detected by monitoring networks: deterioration of food products, contamination of water tables, atmospheric pollution (ARIA 35035, etc.).

The absence or insufficient official communication on the observed anomalies can only lead to questions, worries, standpoints based on subjective factors and even rumours thus putting authorities in an uncomfortable position of having to justify. It is even more important to promptly communicate in critical situations. Modern information and communication technologies make it possible for everyone to instantaneously communicate information that may be true or false.

Otherwise, the bearer of adverse information will be suspected of concealing information in the event of not taking the initiative to share it promptly (ARIA 23839, etc.).

It is advisable to bear in mind the above points to optimally communicate in difficult circumstances in a modest way without neither evading the encountered problems nor reassuring the public at all cost. More than technical information, experience shows that there is a high expectation from the public to know the truth.

Additional references (detailed sheets):

- ARIA 20493 Vénizel 2001 / Transformer fire containing PCB
- ARIA 23839 Chalampe 2002 / Long lasting cyclohexane leak
- ARIA 26002 Harnes 2003 / Outbreak of legionellosis in HARNES.

The accidents whose references are not underlined may be consulted at:
www.aria.developpement-durable.gouv.fr

  **ARIA 2257 - 04/08/1990 - 76 - PETIT-COURONNE**

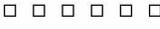
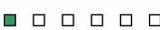
19.20 – Oil refining

-   In a refinery, an underground pipeline carrying premium grade unleaded petrol between a tank and an oil wharf
-   had been leaking since at least 1985. This leak polluted the ground water and caused the use of drinking water catchment to be discontinued. However, gas emissions spreading through the city's sewage system led to an
-   explosion in a detached house located 2 km away after the mixture was ignited upon re-starting the water heater in the residence.

After 20 days, investigations revealed a hole of a few mm² wide hole in the corroded pipeline. Over 15,000 m³ of hydrocarbons were lost and over 13,000 m³ were pumped into the water table. The operator compensated the aggrieved third parties by purchasing the destroyed detached house and indemnifying the water supplier and the local authorities. The total cost of operations crossed 50 MF.

  **ARIA 8319 - 20/07/1995 - ITALY - MONCALIERI**

ZZ.ZZ – Unknown origin

-   A river was polluted by a toxic substance: oily brown stains on the surface, thousand of fishes killed, etc. Three
-   accident scenarios were thought of to explain the events: industrial production waste, release of buried waste (300 broken barrels of toxic products upstream to the river) or deliberate dumping of waste into the river. The
-   river water and the fishes were studied to identify the substances in question.

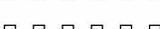
ARIA 8984 - 30/05/1996 - 95 - LOUVRES

ZZ.ZZ - Unknown origin

During the annual examination of drinking water, an abnormal quantity of cyanide was detected in the distribution network supplying four villages (35,000 people). The polluted water table was used by seven water catchments. One of them was closed following the detection of 250 µg/l (max. authorised concentration - 50 µg/l) of cyanide. The source of this pollution was unknown (industrial site, uncontrolled dumping, etc.). If the situation worsened, it was planned to interconnect the water supply network of the village to the network of adjoining villages. The water table and supplied water were analysed on a daily basis. A legal enquiry was conducted.

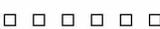
  **ARIA 13666 - 18/08/1998 - 29 - CHATEAUNEUF-DU-FAOU**

ZZ.ZZ - Unknown origin

-   The waters of the NANTES - BREST canal were polluted killing thousands of fishes over an area of 15 km
-   between CARHAIX and CHÂTEAUNEUF-DU-FAOU. The several tests run on the canal waters and effected fauna did not reveal the nature and source of the pollution. As a safety measures, the inhabitants in question
-   were advised against drinking supplied water momentarily. Water was released (700 l/s) to dilute the pollution. A pumping station stopped taking water samples for a few days. Dams were installed to recover dead fish.

  **ARIA 18511 - 04/08/2000 - UKRAINE - CHAUSOVO**

ZZ.ZZ - Unknown origin

-   Children from 3 southern Ukraine villages (CHAUSOVO, MICHURINO and PIDGIRYE) were hospitalised
-   following pollution of soil by nitrates and nitrites causing redness, sleepiness, loss of appetite and vision disorder. The children of a 4th village (BOESLAVCHYK) may have been evacuated the same way. 330 people
-   including 170 children were hospitalised in three weeks. The governor of Ukraine set up a special enquiry committee to identify the reasons behind the events.

  **ARIA 20493 - 18/06/2001 - 02 - VENIZEL**

17.12 – Paper and carton manufacturing

-   A fire broke out around 2:50 am in an electrical utility room at a paper mill. Engulfed in the flames, four
-   transformers emptied entirely and a fifth halfway, dispersing a dielectric containing PCB. A prefectural order
-   motivated by a proposal from the inspection authorities for classified facilities was issued given the risk of contamination by dioxins and furans generated during the fire. The order commissioned investigations to determine the extent of contamination and shut down the facility. The re-commissioning was subject to the

operator producing supporting documents and authorisations provided for in the prefectural order.

A total of 96 individuals present at the time of the accident (including fire-fighters, employees, journalists and neighbours) had to undergo epidemiological supervision for a full year. The trajectory of smoke led to delimiting a 2.5-km cone-shaped zone for future monitoring and a ban on consuming plant products. About one hundred samples of soot, building materials, soils, water and plants revealed the presence of dioxins and furans at higher concentrations near the site of emission.

A prefectural order dated 4 July 2001 set forth conditions for the partial and gradual re-commissioning of the facilities (stripping of soil and cleaning) and imposed identification and closure of all onsite PCB facilities within a year.

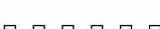
Taking into account the 3 series of analysis on plants, soil, water that revealed PCB and dioxin levels within the daily admissible limits, the ban on exterior land was lifted 25 days later. The quantity of PCB lost equalled approximately 600 kg (of the 2,800 kg initially included), and the quantity of dioxins emitted was 13 kg. The building that caught fire was completely destroyed, with damages estimated at 15.2 million euros. The fire may have resulted from a short-circuit or the poor condition of an electrical component. The "transformer fire" scenario had not been investigated in the safety study.

In all, 26 transformers containing PCB were gradually removed from the site until August 2002. Despite the initiatives taken by the inspection authorities for several years, the removal of transformers damaged by the fire and the stripped soil was still being finalised in summer 2008

The management of the accident also highlighted the need of close consultation between the various departments of the national authorities, a real-time communication for the various players involved, as well as follows up of the actions taken by the operator.

  **ARIA 21993 - 08/08/1999 - 75 - PARIS**

ZZ.ZZ - Unknown origin

-   In the 15th district in Paris, 8 cases of group contamination with legionellosis were detected on 1 September
-   while the first symptoms were identified as early as 8 August. One patient died. The media pressure rose rapidly. The results of the epidemiological investigation commissioned on 1 September excluded hot water in
-   favour of an environmental contaminating bacterial strain possibly spread by cooling towers.

Alongside the epidemiological investigation, an environmental investigation was launched in the areas visited by the patients within a radius of 500 m: 20 establishments were identified in the 15th district. The gathered information helped identify 6 high-risk sites including one visited by the deceased person who was working in a terrace. The first analysis campaign was launched on 8 September. To detect the possible presence of legionella bacteria, samples were taken from the 20 cooling towers in question: 4 of the 6 sites housed at least one contaminated tower. Strains identical to those infecting the patients were found on 1 site housing 8 cooling towers for 4 cooling circuits. Two of these cooling towers showed bacterial contamination between 1,000 and 100,000 CFU/l. The investigation revealed that the tower dilution system had broken down in the end of July. The facilities were obsolete (pipes not in use, scale formation) and a concentration effect was likely.

After inspecting the facility, the operator made several changes (removal of pipes not in use, etc.). A prefectural order dated 15 September ordered the cooling towers at "risk" to be drained and disinfected. A preventive biocidal treatment was administered and the consumption of water and the physico-chemical properties monitored. The inspection department launched a campaign to monitor check the classified facilities in the perimeter of contamination. This accident showed that training and sharing information with

operators was virtually non-existent and the liabilities associated with the cooling towers (circuit design, scale formation, air inlets, random water treatment procedures, difficult access to the cooling towers) were rather hard to manage. The inspection was vital in some cases and so was a detailed visit to facilities at risk. A maintenance manual had to be drafted to keep record of the failures effecting facilities and the actions taken by the operator.

     **ARIA 23839 - 17/12/2002 - 68 - CHALAMPE**

20.14 – Manufacture of other basic organic chemicals

   During efforts since the previous day to locate the source of a pressure drop on the cyclohexane supply line of an olone production facility, a leak of this substance was discovered at a chemical site. The substance, used in large quantities, is of relatively low toxicity, although it a pollutant and flammable.

 Stored in a 10,000 m³ reservoir, the cyclohexane is supplied to the olone and adipontrile (ADN) facilities by a partly common pipeline. Maintained at the proper temperature by a steam system, the cyclohexane is transferred at 20°C and at 2 to 3 bar through lagged overhead or underground piping. With an output ratio of 266:1, 2 pipes, 100 and 40 mm, provide a continuous supply to the olone shop and a discontinuous supply to the ADN shop.

According to the operator, the leak occurred from the rupture of the ADN shop's 40 mm pipe due to the dilation of liquid cyclohexane in the overhead part of the pipe between two blockages of crystallized cyclohexane. A malfunction of the pipe heating device (T < 6.5°C) led to the formation of blockages, with the cyclohexane then reliquifying primarily in the section the most exposed to the outside heating. As the piping was not yet equipped with a device for rapid leak detection, it took 30 hours to determine the cause of the pressure anomaly. The operator initially estimated the leak at just a few m³ of cyclohexane, then between 850 and 1,200 t in the following weeks, the vast majority had migrated into the ground. A few days later, core samples taken at a depth of 13 m (the depth of the water table) showed the presence of a layer of cyclohexane localized near the site of the leak; lowering of the water table by one of the wells of the site's hydraulic security barrier would have limited the spread of the pollution. Analyses of the water table off site showed no trace of cyclohexane above the drinkability threshold.

On July 2, 2003, 420 t of cyclohexane were pumped from the water table and 16 t extracted from the ground through venting techniques... In July 2004, 590 t of cyclohexane had been recovered, although cleanup operations had slowed considerably since the first of the year, with the quantities of cyclohexane recovered stabilising around ten tonnes per month. Consequently, a Prefectural order was issued July 28, 2004 to request that risk analysis be conducted within the scope of a remedial plan.

     **ARIA 26002 - 28/11/2003 - 62 - HARNES**

20.14 – Manufacture of other basic organic chemicals

   On November 28, 2003, two cases of Legionnaire's Disease were recorded, the first symptoms of which dated back to the beginning of November. The dates of outbreak of the pathology, which were then staggered over time, revealed two distinct waves of contamination with a total of 86 individuals contaminated, aged between 32 and 92 (of whom 18 died). These cases all broke out within a radius of slightly over 10 km around the city of Lens. The DDASS (local Sanitary and Social Affairs Office) conducted environmental investigations at the

homes of patients and within several facilities open to the public. At the request of the DRIRE (Regional Agency for the Environment, Research and Industry), all facilities operating cooling towers within the designated zone were asked to adopt measures to identify the eventual presence of legionella and clean their circuits.

On October 15, the operator of a chemical installation specialised in alcohols and fatty acids extracted samples whose results revealed a concentration of legionella at a level of 730,000 CFU units/litre. Following a shock treatment using biocides, analyses 15 days later yielded a concentration of less than 100 CFU/litre. On November 20, another inspection announced that the level of 600,000 CFU/litre had been reached. In light of these results, the chemical plant's cooling towers were ordered to be shut down on November 29. As of December 3, the tower circuits were drained and cleaned. Operations resumed on December 22, and a prefectural decree was issued January 2, 2004 mandating the operator to halt all plant activity once again due to the appearance of a second epidemic wave.

At the same time, the Prefect commissioned the DRIRE Agency to extend its investigations, notably by inventorying all cooling towers within the neighbouring 53 towns and imposed the shutdown of several installations (automobile washing stations, food processing activities, refrigerated warehousing, etc.), causing layoffs to hundreds of workers for several days. Even though a similarity was detected between the strains extracted from 23 of the patients and those present in the suspected cooling tower at the petrochemical plant, other sources of contamination could not be ruled out. High legionella counts in the lagoons of this same plant necessitated turning off aerators on January 20. This site's revenue loss would amount to several millions of Euros, corresponding to a production downtime of 14 weeks. A prefectural order authorising reactivation of the towers was issued on March 19, 2004, yet the plant would never operate again.

    **ARIA 26108 - 01/07/1976 – UNITED STATES - PHILADELPHIA**

55.10 – Hotels and similar accommodation

   During an American Legion veteran convention in a hotel in Philadelphia, over 200 participants developed a form of pneumonia and had to be hospitalised. This lung disease accompanied by high fever did not respond to treatment with standard antibiotics. Food poisoning was thought to be a reason even though the real reason behind the disease was still unknown. Among the veterans, 29 deaths were reported that created an unprecedented wave of panic. 34 people including people passing by contracted this disease. It was only after six long months of investigation that the 'Center for Disease Control' (CDC) Atlanta discovered in January 1977 a new bacterial species (Legionella) responsible for this disease named "Legionnaires' disease" given the circumstances.

ARIA 27109 - 16/05/2004 - 38 - GRENOBLE

ZZ.ZZ - Unknown origin

At 7.30 am, around 100 people took ill in a district of the French city of Grenoble due to a strong odour with a pungent taste and causing irritation to the eyes. The police, fire-fighters and a representative of a chemical platform who were alerted several times carried out reconnaissance operations. The colorimetric analysis (chlorine) carried out on the air samples yielded no results. The odour disappeared late in the morning. No chemical leak was reported and the people were not asked to stay indoors or evacuate the district.

     **ARIA 29977 - 01/01/2005 - 45 - GIEN**

38.11 - Collection of non-hazardous wastes

   As part of the mandatory annual analysis of atmospheric emissions, the operator of a household waste incineration plant received on October 8, 2004 the analyses of samples extracted during the month of August, showing: considerable excess of CO (312 and 664 mg/m³ vs. a threshold of 100 mg/m³) on two processing lines (I1 and I2) and in HCl on the I2 line (571 mg/m³ vs. threshold of 50 mg/m³), along with high values of dioxins (29 and 221 ng/m³) on the two lines. Informed of these results on November 8, the local DRIRE Environmental

Agency proposed issuing a formal notice to impose compliance with regulatory thresholds in addition to a monthly monitoring campaign instead of annual tests (January 2005 directives), including: tracking of atmospheric emissions and impact of dioxins within a 5-km radius (analyses conducted on milk from adjacent dairy farms, atmospheric fallout).

On January 21, the DRIRE Office received the cross-check analyses of discharges conducted during December: no threshold excess on the I1 line, marked excesses of both CO and HCl (513 and 183 mg/m³) on I2, very high dioxin contents on both lines (21 and 308 ng/m³). On the same day, the Agency requested closing I2 altogether (to take effect on January 24), and ultimately suspending this line (order issued on March 16 upon recommendation of the local Hygiene Office). On February 23, the samples taken in January confirmed the facility's malfunctions and the need to shut I2 down: 1,875 mg/m³ of CO and 680 ng/m³ of dioxins above the previous findings.

The enhanced atmospheric emissions monitoring programme indicated a return to normal operating conditions on the I1 line. Monitoring was extended out of precaution and oriented towards ensuring food safety, i.e.: dioxin levels found in the soils, plants, eggs, vegetables, grazing lands and fodder. According to the experts (AFSSA, INVS), these results did not reveal any abnormal level of contamination among the various media nor an exaggerated potential health risk for neighbouring populations: in particular, the rate of dioxins in storm water collector pipes was observed to be low in comparison with typical values, the amounts found in milk were compliant with sanitary standards (which equals 3 pg I-TEQ/g of fat, i.e. the value above which milk is recalled from stores), and high concentrations in eggs from family farms attributable, following a field investigation, to local practices. According to the facility operator, an inadequate level of waste preparation (formation of "clusters", accumulation of iron wires) would explain the poor combustion (resulting in the formation of CO and dioxins). The fluidised bed would have gradually deteriorated. The malfunction of smoke exhaust treatment using milk of lime would explain the HCl contents.

Works intended to bring operations into compliance and optimise both incinerator furnaces were undertaken. The plant would start up again 3 years hence (January 2008), and at that time the pollutant discharge measures were compliant with regulatory standards.

 **ARIA 32305 - 02/10/2006 - BULGARIA - NC**

ZZ.ZZ - Unknown origin

 An oil slick of unknown origin drifted into the DANUBE river polluting over 100 km of the Bulgarian part of the river according to the Bulgarian authorities. A nuclear power plant using the waters of the river for its cooling system took preventive measures by implementing oil booms and through additional filtration. The Bulgarian authorities made an official request to the authorities of the 12 riparian countries to identify and treat the pollution source.

 **ARIA 35035 - 22/08/2008 - 42 - SAINT-CYPRIEN**

38.32 – Recovery of sorted waste

 A fire broke out at around 4.00 am in a 2 000 m² wood storage area of a wooden pallet recycling plant. The security guard of the site living just opposite the wood storage area spotted the fire and informed the emergency services. Several water nozzles were installed once the fire-fighters arrived on site. A thick cloud of smoke was seen above the village.

The inspection authorities for classified facilities arrived on site at around 1.30 pm and observed that the wood stock was likely to have been soiled or treated with chemicals and the volume of the wood stored was greater than the quantity allowed by the authorised operating regime. The operator admitted having forgotten to inform the prefecture or the inspection authorities. An emergency order recommending the analysis of underground water in the site and in the neighbouring farming areas was issued.

The origin of the fire was unknown. It may have started in a mill grinder. The gendarmerie (French military police) carried out an inquiry to determine the causes of the accident.

On Wednesday the 3 September, the smouldering was kindled by a gust of wind. The fire-fighters were called in once again. The assistant prefect visited the premises. Three orders were issued by the prefect of the Loire region: suspension of activities, emergency, cleaning and waste disposal measures and formal notification to remedy all administrative discrepancies in the company. It took three months for the fire-fighters to bring the fire under control once and for all. Precautionary measures on human and animal food were taken within a 1 kilometre radius of the plant in question. PCB contamination was detected in Saint Cyprien causing a farm with 85 cows to be isolated.

On 24 December, an emergency order was issued by the prefect recommending a new analysis of the underground and surface water, soil, and plants as well cleaning of the pits.

On 30 January, several prefectural orders were issued banning the sale and consumption of all animal products within a radius of 1 km. Seven farms were isolated a ban on feeding animals with food produced on the lands within the 1 km radius of the plant was put in place.

ARIA 35874 - 22/08/2008 - BELGIUM - FLEURUS

21.20 – Manufacture of pharmaceutical preparations

Iodine 131 leaked during the transfer of a liquid effluent between 2 tanks in a medical laboratory of a institute specialising in the production of therapeutic radioactive elements. The plant is the world's second largest producer of radioactive elements marketed in liquid form to be used in medical imaging and cancer treatment. On Monday, the staff of the institute observed an abnormally high isotope content in an evacuation stack following a failure of the plant's filtration system. The AFCN (Belgian federal agency for nuclear safety) that was alerted to the accident also informed the ASN (corresponding French body for nuclear control)

The accident was initially said to be consequence free, and then further to the analysis of plant samples in the vicinity, the authorities warned the people a few days later of possible contamination. To this effect, the police communicated messages in the roads using loudspeakers asking the 20,000 inhabitants of the district to refrain from consuming fruit and vegetables from the gardens, rain water and milk from neighbouring farms. These measures concern several villages within a radius 5 km from the point of release. The radius was reduced to 3 km in the end of August when the air and water samples were free of radioactive substances. To reassure the masses, several hundred children underwent a salivary gland test the following week.

The conducted enquiry assessed 45 GBq of emissions released in 4 days, i.e. the dosage absorbed at one go by 12 patients suffering from thyroid cancer. Once in the body, 30% of the iodine 131 settles on the thyroid gland (given the short life time of iodine 131). The health impact is therefore considered to be extremely low. The accident was however rated 3 out of the 7 level International Nuclear Event Scale.

The accident is believed to have resulted from a handling error. Failure of the computed managing the alarms was also mentioned. The technician on duty thought it to be a "filter problem" and took no special measures, allowing the production cycle to run for over 24 hours. According to the press, both the French and Belgian nuclear safety agencies had identified defects in the laboratory's safety system during a joint audit carried out in November 2007.