

Control of Activities in the Vicinity of Basic Nuclear Installations

GUIDE No. 15

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Preamble

The ASN collection of guides is intended for professionals concerned by the nuclear safety and radiation protection regulations (licensees, users or carriers of ionising radiation sources, health professionals).

These guides can also be issued to the various stakeholders, such as the local information committees (CLIs).

Each guide sets out recommendations with the aim of:

- explaining the regulations and the rights and obligations of the persons concerned by the regulations;*
- explaining the regulatory objectives and, as applicable, describing the practices considered by ASN to be satisfactory.*
- giving practical tips and information concerning nuclear safety and radiation protection:*



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INTRODUCTION

1.1. Regulatory references

- Articles L. 101-2, L. 132-1 à L. 132-3, L. 421-1, L. 421-2, R. 111-2 and R. 132-1 of the Urban Planning Code
- Articles L. 125-10 to L. 125-33, L. 511-1, L. 515-8 to L. 515-12, L. 593-5 and R. 515-24 to R. 515-31-7 of the Environment Code
- Articles R. 741-18 to 32 of the Homeland Security Code (*former decree 2005-1158 of 13th September 2005 relative to off-site emergency plans*)
- MSC Act of 2004-811 of 13th August 2004 relative to the modernisation of civil protection.
- "TSN" Act 2006-686 of 13th June 2006 relative to transparency and security in the nuclear field
- "TECV" Act 2015-992 of 17th August 2015 relative to the energy transition for green growth
- Decree 2007-1557 of 2nd November 2007, amended, relative to basic nuclear installations and to the regulation of the transport of radioactive substances in terms of nuclear safety, and its articles 20 and 50 to 52 in particular;
- Order of 29th September 2005 relative to the evaluation and integration of the probability of occurrence, the kinetics, the intensity of the effects and the severity of the consequences of potential accidents in the hazard analysis of classified installations subject to authorisation;
- ASN Resolution 2009-DC-0153 of 18th August 2009 relative to intervention levels in a radiological emergency situation
- Circular of 10th March 2000 relative to the revision of the off-site emergency plans (PPI) relative to basic nuclear installations and the PPI practical guide that is appended to it
- Circular of 17th February 2010 relative to the control of activities in the vicinity of basic nuclear installations that could present hazards outside the site

1.2. Background

Since its creation, ASN (the French nuclear safety authority), when requested by the competent urban planning authorities, issues advisory opinions on the conditions for taking into consideration accident risks associated with basic nuclear installations (BNI) in the production or revision of urban planning documents (municipal maps, local urban development plans (PLU), territorial coherence schemes (SCoT)) and for the examination of urban planning authorisation applications (building permits and development permits).

The aim is to protect the populations living near basic nuclear installations by controlling the development of activities that could increase their exposure to the accident risks inherent to these installations.

The ministerial circular of 17th February 2010 thus asked the Prefects to ensure that caution is exercised in the development of new activities, constructions or facilities which could present off-site hazards in the vicinity of BNIs, and to reinforce their oversight in relation with ASN.

To achieve this, the regional divisions of ASN have communicated to the Government departments the technical elements for characterising the accident risks associated with the BNIs, notably the zones of rapidly developing hazards ("immediate hazard zones" in the abovementioned circular) concerned by the developing rapidly accident scenarios which can cause, in the first six hours following the initiating event, a release that justifies population protection measures or a hazardous phenomenon with levels exceeding irreversible effects thresholds. The elements communicated by ASN are based on the reflex accident scenarios of the off-site emergency plan (PPI) provided by the licensee, examined by ASN and its technical support IRSN (Institute for Radiation Protection and Nuclear Safety), then communicated to the Prefects to determine the intervention perimeters of the off-site plans.



1.3. Document preparation and status

ASN Guide No.15 is the achievement of more than five years' work on the control of activities in the vicinity of basic nuclear installations. It has been produced jointly by the DGPR (General Directorate for Risk Prevention), the DGALN (General Directorate of Development, Housing, and Nature) and ASN, within a working group comprising elected officials and ANCCLI, the federation of local information committees. This working group, co-coordinated by ASN, was set up in accordance with the request expressed in the ministerial circular of 17th February 2010. This guide incorporates the remarks formulated during the broad public consultation held in 2011.

1.4. Objective

This guide formalises the national doctrine of ASN for the control of activities in the vicinity of BNIs and presents the instruments aiming to limit the presence and growth of populations exposed to nuclear risks.



2. THE CORNERSTONES OF THE CONTROL OF RISKS CAUSED BY BASIC NUCLEAR INSTALLATIONS

Risk is the combination of a hazard (feared event which, for a BNI, may be radiological or not – toxic leak, fire, explosion) and the vulnerability of the area, which is closely related to the number and type of stakes, particularly human, exposed there.

Control of the risks caused by BNIs is therefore based on four essential cornerstones:

- risk reduction at source, which is the licensee's obligation;
- the implementation of emergency plans;
- preventive information of the population and municipalities;
- control of the activities in the areas exposed to risks.

2.1. Risk reduction at source

Reducing the risk at source is the first crucial step in any risk prevention process. Under the regulations relative to nuclear safety, the licensee must take all measures to reduce the risks to a level that is as low as reasonably achievable under acceptable economic conditions. The measures taken by the licensee to reduce the probability of occurrence and the seriousness of hazardous phenomena constitute the priority axis of the technological risks prevention policy.

The Act of 13th June 2006 relative to transparency and security in the nuclear field ("TSN" Act), now codified in the Environment Code, defined the legal framework applicable to BNIs. It gave ASN the status of an independent administrative authority. ASN oversees compliance with the general rules and particular prescriptions concerning nuclear safety and radiation protection applicable to BNIs.

2.2. Emergency plans

The emergency plans are the ultimate response to prevent and mitigate the consequences of an accident.

The on-site emergency plan (PUI) is established by the licensee and examined by ASN. It describes the licensee's organisation and resources capabilities to respond to emergency situations on its facility (article 20 of the amended decree 2007-1557 of 2nd November 2007 relative to BNIs and oversight of the nuclear safety of radioactive substance transport and article R. 741-40 of the Homeland Security Code). **The "ORSEC" (disaster and emergency response organisation) plan** and its specific provisions, namely the **off-site emergency plans (PPI)**, were introduced by the Modernisation of Civil Protection Act (MSC) of 13th August 2004. They are deployed by the Prefect of the département should the consequences of an accident extend beyond the boundaries of the site (articles L. 741-1 to L. 741-6 and R. 741-1 to R. 741-32 of the Homeland Security Code). The BNIs that are required to have an off-site plan are specified in article R. 741-18 of the Homeland Security Code. The off-site plan perimeters depend on the BNIs and extend to a radius of 10 km at the most. They were supplemented in 2000 by the creation of "reflex" off-site plan perimeters (a radius of about 2 km for nuclear power plants) to better respond to rapidly developing accidents through the implementation of predetermined and conservative population protection actions (interministerial circular of 10th March 2000 revising the off-site emergency plans relative to basic nuclear installations)¹.

¹ When this guide was published, the work concerning the off-site plan doctrine and the geographical coverage of the regional planning of population protection measures were in progress, in relationship with the National response plan for a major nuclear or radiological accident of February 2014. This work could lead to a change in the radiuses of the current perimeters.



The local safeguard plan (PCS), which is mandatory for municipalities situated in an area concerned by an off-site plan, "determines, according to the known risks, the immediate safeguard and human protection measures, sets the organisation required to disseminate the alert and the safety instructions, inventories the available resources and defines the implementation of measures to support the population" (article L. 731-3 of the Homeland Security Code).

2.3. Informing the population and the local authorities

There are numerous information communication vectors.

The TSN act imposes on nuclear licensees a duty to inform the public which has no equivalent in other sectors of activity. It has reinforced the informing and consultation of the public in procedures relative to BNIs (art. L. 125-10 to L. 125-16 of the Environment Code). It has also given a legal basis to the local information committees (CLI), conferring them with a general duty of monitoring, informing and consulting (art. L. 125-17 to L. 125-33 of the Environment Code).

The act of 17th August 2015 relative to the energy transition for green growth (TECV Act) has increased the right to information of persons living or working within the perimeter of an off-site plan. These persons *"regularly receive, without having to make the request, information on the nature of the accident risks and the envisaged consequences over the perimeter of the off-site emergency plan (PPI) and on the safety measures and the actions to take in application of this plan. These information actions form the subject of a consultation conducted by the local information committee (CLI) at the expense of the licensees."* (article L. 125-16-1 of the Environment Code)

The BNIs that require an off-site plan are listed and integrated in the documents drawn up under articles R. 125-10 and R. 125-11 of the Environment Code, relative to the DDRM (departmental file of major risks) drawn up by the Prefect, and to the DICRIM (municipal information document on major risks) drawn up by the Mayor.

Preventively informing the populations is one of the objectives of the MSC act, particularly within the municipal safeguard plans and through the information documents drawn up at the request of the Prefect.

Lastly, the Urban Planning Code specifies in article R. 132-1 that *"[...] the département Prefect informs the municipality, the public establishment for intermunicipal cooperation, or the joint association which decided to produce or revise a territorial coherence scheme, a local urban development plan or a municipal map: 1° The legislative and regulatory provisions applicable to the region concerned [...] 3° The technical studies necessary for the regional authorities to exercise their competence in urban development available to the State, particularly the risk prevention and environmental protection studies."*

The information on the accident risk associated with the BNIs is provided on the basis of technical elements established by the licensee and examined by ASN.

2.4. Control of activities

The control of activities around BNIs aims to limit the hazards of the accident risks caused by the BNIs through several means:

- first and foremost, active institutional controls (article L. 593-5 of the Environment Code) see §4.3.1. ;
- where applicable, the urban planning documents such as the territorial coherence schemes, the local urban development plans and the municipal maps, see § 4.3.2. ;
- in application of land rights:
 - o building permit and development permit (articles L. 421-1 and L. 421-2 of the Urban Planning Code);
 - o if necessary, recourse to the provisions of article R.111-2 of the Urban Planning Code, particularly to set special prescriptions on a case by case basis.



3. ASN'S DOCTRINE CONCERNING ACTIVITIES IN THE VICINITY OF BASIC NUCLEAR INSTALLATIONS

The basic objective of controlling activities around BNIs is to protect the neighbouring population against the consequences of accidents that can occur on BNIs by preserving the operability of the emergency plans.

The required approach is that of prudent development, as indicated in the abovementioned circular of 17th February 2010, applicable to the new activities, constructions or facilities situated within the rapidly developing hazard zones of the BNIs, including projects to extend, rebuild or change the purpose of facilities.

Some BNI sites feature conventional industrial facilities which can have irreversible or deadly non-radiological effects outside the sites in the event of an accident (explosions, releases of toxic chemical substances). In such cases, the aim is to reduce any human presence in the zones of lethal effects.

To achieve these goals, the State recommends favouring regional development beyond the rapidly developing hazard zones, while permitting controlled development that meets the needs of the resident population.

Principle No.1: Preserve operability of the emergency plans

Protection of the populations in the event of an accident on a BNI is based essentially on the protection measures that would be implemented in an emergency situation, which include sheltering, evacuation and - in the event of radioactive iodine releases - taking stable iodine tablets. These measures are planned in the ORSEC plan and its off-site emergency plan (PPI) appendices, drawn up under the authority of the Prefect. They are intended to prevent prolonged exposure of the populations, should an accident occur on a BNI. The accident risks are more particularly of a radiological nature and do not usually cause immediate lethal effects outside the site.

The operability of the emergency plans could be reconsidered if inappropriate activities were to be established in the zone that could be impacted in the event of an accident. This aspect is particularly important in the rapidly developing hazard zone. This is why the control of activities around BNIs focuses on this zone.

Maintaining the operational nature of these emergency plans results in constraints. In the event of a rapidly developing accident, sheltering must be fast and effective, which implies that the entire population present in the zone must be able to "without delay get to a permanent building, close the doors and windows, stop mechanical ventilation systems but without blocking the corresponding air outlets"², a building in which this population could remain for several hours pending possible evacuation.

It is thus advisable to avoid the construction of any facility or building that, in case of emergency, would not allow rapid sheltering of the population or would make evacuation difficult. The roads must also be capable of handling the traffic flows that would be created under these circumstances.

² According to the Ministry of the Interior's guide to the preparation of the off-site emergency plan (PPI).



Principle No.2: Favour development beyond the rapidly developing hazard zone

BNI sites have a long life time (several decades). On this time scale, the areas near the sites can undergo substantial changes, which are often gradual. Thus, a slight annual increase in residential capacity can ultimately result in a significant total increase in the resident population near the BNI. If this development is not controlled, it could question the maintaining of operability of the emergency plan and the factors and parameters which led to the choice of site. Any project that could increase the number of persons exposed must be analysed with respect to the overall development of the population in the zone.

A medium and long-term reflection on the development of the residential capacity and the development of activities in the zone must be carried out. In accordance with the circular of 17th February 2010, "at the plans and programmes stage, the development of activities outside this zone [of rapidly developing hazards] must be favoured, considering insofar as possible alternatives that are not exposed to the risk. The development of sensitive projects within this zone must be avoided."

Depending on the configuration of the area, the local actors may be asked to extend their reflection to an inter-municipal scale.

Principle No.3: Allow controlled development that meets the needs of the resident population

The requirement for public safety must not obstruct the balanced functioning of the area concerned. The social and economic services and activities necessary for the existing population must thus be able to be authorised and renewed.

The deployment of new projects within the rapidly developing risk zone must however be justified and the projects must be consistent, particularly regarding their scale, with the needs of the population residing within the zone. Projects that could constitute an attraction for tourists or people living outside this zone must be avoided.

The activities directly associated with the functioning of the basic nuclear installations, whose location within the rapidly developing hazard zone is required and justified, may be permitted on condition that, in accordance with the second general principal, the possibility of locating these activities outside this zone is examined in the first instance.

4. CONDITIONS OF LAND USE

4.1. Objectives to be achieved

Control of the activities around BNIs applies to the new activities, constructions or facilities, including projects to extend, rebuild or change the purpose of facilities. These projects must not prevent implementation of the protection measures provided for in the off-site plans, particularly sheltering and evacuation.

Control of the activities focuses on the "reflex" perimeters of the off-site plan, even if the off-site plan perimeter covers a wider radius around the installation. Thus, any project that would prevent rapid sheltering of persons or make subsequent evacuation difficult should be avoided.

The instruments detailed below enable the presence and growth of populations exposed to the risks caused by BNIs to be limited, in compliance with the three general principles specified in chapter 2.



4.2. Reference table

In order to appreciate the issues at stake and to implement these general principles proportionately, the actors can use the following reference table.

The recommendations must be considered with regard to the general principles according to the configuration of the area and the population. Thus, if the setting up of a public building is in principle to be avoided, there can nevertheless be no question of depriving the existing population of shops and local services. Conversely, the low vulnerability of an activity does not constitute a reason justifying it being situated in the rapidly developing hazard zone.

The types of projects are given for information only. The true vulnerability of the project may be revised upwards or downwards depending on the induced headcount and the peoples' knowledge of the instructions in the event of an alert.

Vulnerability	Characteristics	Types of project (for information)	Acceptability
Negligible	The persons, if any, who could be present in the zone will be very limited in number and be there for a short period of time. They are informed of the instructions to follow in the event of an alert.	Natural/forest areas Energy parks (wind turbines, solar panels) Agricultural enterprises	++
Low	The project contributes to a slight increase in the population in the area. The population protection measures can be implemented without difficulty. The persons concerned are residents or workers; they are familiar with the instructions to follow in the event of an alert.	Warehouses, offices Industrial activities Sparsely populated area Local service ³ , small trading business	+
Average	The project contributes to a significant increase in the population in the area. This population, essentially residential, will have been informed of the action to take in the event of an alert but the immediate population protection measures (sheltering and evacuation if necessary) will be more difficult to implement.	Densely populated area Large-scale operation Public buildings (apart from local services)	-
High	The persons likely to be present in the zone will not be sufficiently familiar with the action to take in the event of an alert, will be unable to recognize a hazard or will be difficult to evacuate. If there is no permanent building, the populations will not be able to be sheltered.	Sensitive establishments ⁴ Places of interest ⁵ Light constructions Outdoor centres ⁶ with no means of alert or sheltering	--

³ Local service*: development, construction, facility, equipment helping to guarantee the quality of life of the population living in the zone (e.g.: grocery store, bakery, municipal public services, etc.). It is not intended to attract a clientele that lives outside the zone.

⁴ Sensitive establishment *: establishment which, by its nature is in principle likely to receive persons who are unable to recognise a hazard or who would be difficult to evacuate: hospitals, healthcare centres, rehabilitation centres, nursing homes, nurseries, child day-care facilities, schools, prisons, etc.

⁵ Places of interest *: development, construction, facility intended to attract a high concentration of people.

⁶ Outdoor centres and light constructions: they display a high level of vulnerability because of their inability to provide sheltering. The presence of a sufficiently large permanent building reduces this vulnerability. The population concerned must be informed of the action to take in the event of an alert.

* The notions marked with an asterisk (*) do not have a strict correspondence with the Urban Planning Code.



4.3. Management of new projects

The instruments presented below are used to control the new activities, constructions or facilities, including projects to extend, rebuild or change the purpose of facilities.

Within the rapidly developing hazard zone (corresponding to the "reflex" PPI zone), the aim is to avoid any new project that would not allow rapid sheltering or which would render subsequent evacuation difficult. This particularly concerns "sensitive" establishments. Similarly, excessive population densification could jeopardise the operability of the emergency plans.

4.3.1 Active institutional controls

Since the TSN act of 2006 came into force, the Prefect can institute active institutional controls around BNIs in operation, with the support of the ASN, in application of article L. 593-5 of the Environment Code (*"the administrative authority can introduce active institutional controls on the use of the ground and the execution of works subject to declaration or administrative authorisation, around basic nuclear installations, including existing installations"*) and articles 50 to 52 of the decree of 2nd November 2007 relative to BNIs and oversight of the nuclear safety of the transport of radioactive substances.

Articles 50 to 52 of the said decree specify the purpose and the applicable procedure for introducing active institutional controls around BNIs, including existing installations. They cross-refer to articles L. 515-8 to L. 515-12, L. 593-5, and R. 515-24 to R. 515-31-7 of the Environment Code.

Active institutional controls are instituted by the Prefect at the request of the licensee, the mayor of the municipality in which the installation is located, ASN, or on the Prefect's own initiative. The administrative procedure includes a public inquiry and consultation of ASN, of the municipal councils and the CODERST (Departmental Council for the Environment and for Health and Technological Risks). The entire procedure takes about a year. Instituting active institutional controls can also be a step prior to the commissioning of a BNI.

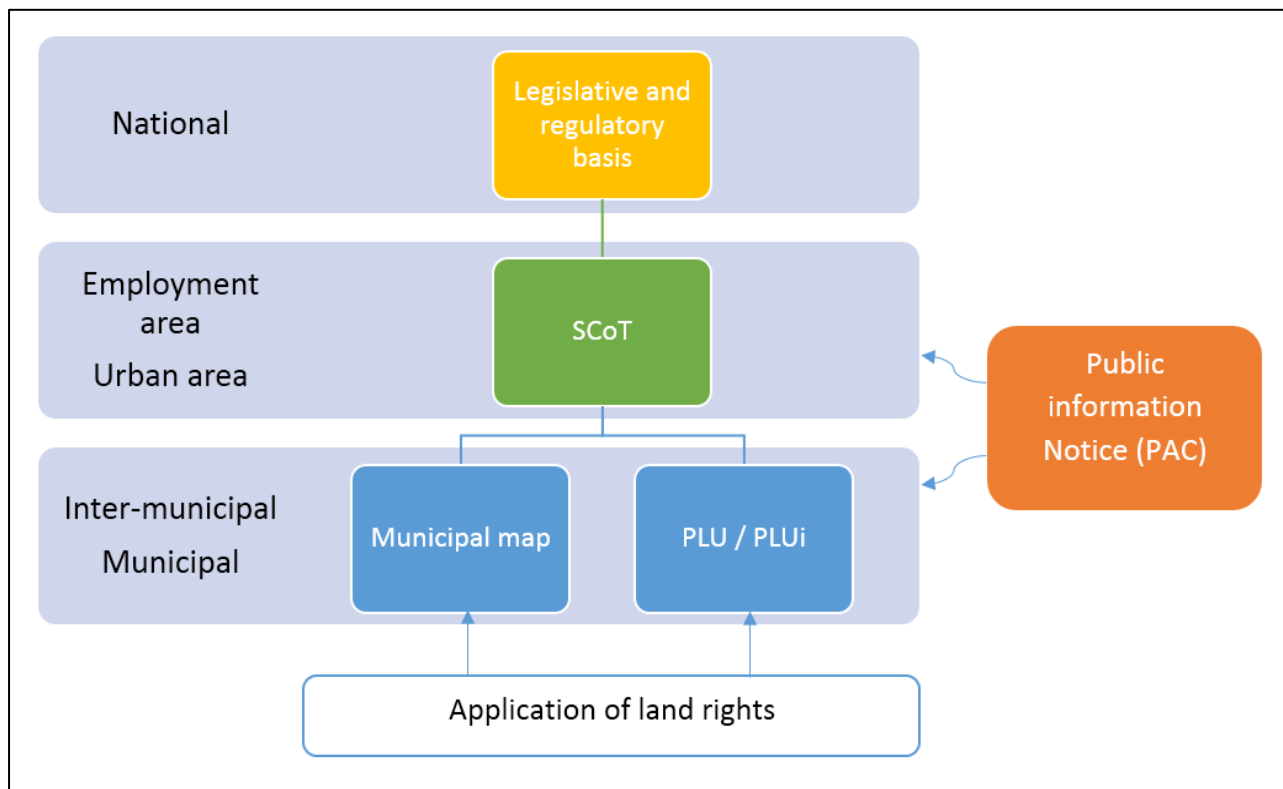
The limitations that the Prefect can prescribe are governed by article L. 515-8 of the Environment Code which stipulates that: *"Active institutional controls can be instituted with regard to the use of the ground and the execution of works that require a building permit. They can include, as required:*

- *The limitation or prohibition of certain uses that could prejudice the interests mentioned in article L. 511-1, of the right to set up constructions or engineering structures or to develop land;*
- *Making building authorisations subject to compliance with the technical prescriptions that aim to limit the exposure of the building occupants to hazardous phenomena;*
- *Limitation of the number of persons employed in the industrial and commercial facilities.*

Active institutional controls cannot oblige the demolition or vacating of existing constructions erected in compliance with the legislative and regulatory provisions in effect before the said institutional controls were introduced."

4.3.2 The instruments of the Urban Planning Code

The management of any project relative to the control of urban development is based on legislative and regulatory foundations applied through planning instruments and a regulatory corpus adapted to the local socio-economic issues.



Simplified legal framework of urban planning documents

- **The Public Information Notice (PAC) and consultation of the public persons, services or commissions concerned**

ASN can be involved at several key moments:

- in the context of the public information notice, when the urban planning documents are drawn up or revised, ASN provides the available information, particularly concerning the rapidly developing hazard zone;
- in the context of the consultation by the competent urban planning authorities, during the production of the urban planning documents or when examining applications for permits.

- **Urban planning documents**

Article L. 101-2 of the Urban Planning Code stipulates that: *"In compliance with sustainable development objectives, the action of the public authorities with regard to urban development aims at achieving the following objectives: [...] 5° The prevention of foreseeable natural risks, mining risks, technological risks, pollution and any type of nuisance"*.

Consequently, the urban planning documents, namely the regional coherence schemes, the local urban development plans and the municipal maps, must take into consideration the risks associated with nuclear activities and the activity control objectives.

The main objective to pursue in the reflections on urban development, and which must be transposed in the urban planning documents, is to avoid increasing population densities in zones exposed to rapidly developing hazards. This is because excessive densification of populations in these zones could challenge the operability of the emergency plans.

The regional coherence scheme (SCoT): Instituted by the act of 13th December 2000 on Solidarity and Urban Renewal (SRU act), the SCoT is a strategic planning document on a time horizon of 15 to 20 years, which enables the EPCIs (public institutions for inter-municipal cooperation) belonging to a given living area to ensure the coherence of their policies in urban planning, housing, commercial facilities, travel and the environment. It comprises a presentation report, a sustainable planning and development project (PADD) and a guidance and objectives document. It more specifically presents an environmental diagnosis and defines the objectives and conditions for ensuring the prevention of natural and technological risks in the presentation report. The PADD takes the risks into account. The DOO, a document which is enforceable against the PLUs (or the documents acting as the PLU) and the municipal maps, specifies the orientations of the sustainable planning and development project.

The local urban development plan (PLU/PLUi): The local urban development plan (PLU) is a municipal or inter-municipal urban planning document created by the SRU act of 13th December 2000, providing for planning on a shorter time horizon (5-10 years). It sets the land use rules per plot over the area concerned.

It comprises:

- a presentation report which includes a diagnosis of the risks in the area and their foreseeable consequences,
- a sustainable planning and development project (PADD) which is drawn up in particular with respect to the risks,
- development and planning guidelines (OAP), which can provide for development conditions that reduce vulnerability,
- graphic documents, illustrating in particular the zoning and the sectors exposed to risks,
- a regulation which can, if necessary, provide for zones with land use prohibitions or restrictions to take account of the risks by adapting the rules relative to the height of buildings, their volume, their location or the ground area they cover,
- appendices, among which figure the active institutional controls.

The municipal map: The municipal map is an urban planning document without regulations, suitable for small rural municipalities. It enables the French urban planning regulations (RNU) to be applied by delimiting the constructible sectors of the municipality, in accordance with an agreement between the municipality and the State representative. It comprises a presentation report and a graphic document (zoning map) which is enforceable against building permit applications and takes the known risks into account. It also contains the appendices, including the active institutional controls.



- **Application of land rights: urban planning authorisations**

Urban planning authorisations are granted by the competent authority in application of the PLU and the national urban planning regulations, and taking into account any active institutional controls. In the first two cases only urban planning provisions can be applied; constructional provisions cannot be applied under any circumstances as they can only be imposed by active institutional controls. The competent authority can use elements provided by ASN to support its decision.

Urban planning authorisation applications for new projects or extensions to existing projects within the zone of rapidly developing hazards must be examined with prudence. This is because granting an urban planning authorisation creates a right which cannot be reconsidered during the validity of the authorisation. For ongoing projects concerning "concerted activity zones" (ZAC) and allotments, the discussions at local level must address the conditions for ensuring the operability of the emergency plans.

- **Article R.111-2 of the Urban Planning Code**

Article R. 111-2 of the Urban Planning Code is a public order article drawn from the French urban planning regulations (RNU). It is enforceable against urban planning authorisation applications, including when active institutional controls are in force or if the municipality has a local urban development plan (PLU) or a document acting as such. It stipulates that: "*The project can be refused or only accepted subject to the observation of special prescriptions if it could jeopardise public health or safety on account of its situation, its characteristics, its size or its proximity to other installations.*"

If the Prefect considers that the project contravenes implementation of the population protection measures, s/he can use this article as a basis for requesting rectification of the act or refer it to the administrative tribunal to verify the legality (administrative court of appeal of Nancy, 2nd July 2009, No. 08NC00795 and No. 08NC00910; administrative tribunal of Lille, 12th May 2011, No.1000988; administrative tribunal of Orléans, 17th December 2013, No.13011664).

In these various contexts ASN issues simple non-mandatory opinions on a case-by-case basis, concerning more specifically the compatibility of the projects with the operability of the emergency plans, particularly in the rapidly developing hazard zones.

4.3.3 The other instruments

Road infrastructures

The development must be accompanied, or even preceded, by the creation of access routes with characteristics that will permit evacuation of the population and movement of the security and emergency services.

Temporary open-air events

This point is indicated for information, as the management of large-scale gatherings of people is not the responsibility of urban planning control but comes under the policing powers of the Mayor and the Prefect.

Temporary open-air events can significantly increase the population present in the rapidly developing hazard zone (examples: fairs, large gatherings). The majority of the people present at such events are not residents and know little about the accident risks and the action to take in the event of an alert. Implementation of the population protection measures provided for in the emergency plans is likely to be impeded. It is therefore advisable to consider alternative locations outside the risk zone. Whatever the case, it is necessary to inform the persons of the action to take in the event of an accident.



GLOSSARY

Millisievert (mSv)

Fraction of the unit of measure of biological effects due to the absorption of ionising radiation by the human body.

Public information notice (PAC)

"The competent administrative authority of the State informs the municipalities or their competent groupings of: 1° The applicable legislative and regulatory framework 2° The regional authority and State projects under preparation or already in existence. The authority [...] communicates to them, for information, all the technical studies at its disposal and which are necessary for exercising their competence with regard to urban planning" (art. L. 132-2 of the Urban Planning Code). The technical elements for the nuclear risk are established by the licensee and examined by ASN.

Nuclear risk

Risk that can arise on a nuclear installation. This term encompasses radiological and non-radiological risks (toxic leak, fire, explosion, etc.). These risks are presented in the baseline safety requirements of the installation, in accordance with the decree of 2nd November 2007.

Vulnerability

Compatibility of a mode of occupation of space with the implementation of measures to protect the populations concerned (sheltering and, if necessary, evacuation). The more vulnerable the project, the more difficult it will be to implement the protection measures.

Hazard zone

Geographical extent to which the following could be reached in the event of an accident:

- the intervention levels in a radiological emergency situation⁷ : radiological risks;
- the Irreversible Effects Thresholds (IET) for man⁸ : non-radiological risks;

Rapidly developing hazard zone

Geographical extent to which the abovementioned levels could be reached within a few hours at the most in the event of an accident (rapidly developing accidents). The chosen accident scenarios were provided by the licensee, examined by ASN then communicated to the Prefects to delimit the reflex zones, called "immediate hazard zone" in the circular of 17th February 2010.

PPI zones

Emergency planning zones predefined in the Prefects' off-site emergency plans (PPI). PPI zones include "reflex" zones (safety perimeters with a radius of 500 m to 3.5 km depending on the BNIs). The "reflex" PPI zones encompass the rapidly developing hazard zones. After the first few hours of the emergency and the reflex phase, the PPI zone radiuses can extend to 10 km.

* The notions marked with an asterisk (*) do not have a strict correspondence with the Urban Planning Code.

⁷ Intervention levels defined by ASN Resolution 2009-DC-0153 of 18th August 2009 relative to intervention levels in a radiological emergency situation:

- sheltering: effective whole body dose ≥ 10 mSv ;
- evacuation: effective whole body dose ≥ 50 mSv ;
- administration of stable iodine: equivalent dose to the thyroid ≥ 50 mSv.

⁸ IET defined by the order of 29 September 2005 relative to the evaluation and integration of the probability of occurrence, the kinetics, the intensity of the effects and the severity of the consequences of potential accidents in the hazard studies of classified installations subject to authorisation



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