GROUPE D'EXPERTISE PLURALISTE

Rapport

du Groupe d'Expertise Pluraliste
sur les sites miniers d'uranium
du Limousin

Recommandations pour la gestion des anciens sites miniers d'uranium en France

Des sites du Limousin aux autres sites du court aux moyen et long termes

Executive Summary

Rapport GEP

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The final report of the Groupe d'expertise pluraliste sur les mines d'uranium du Limousin (GEP) [Pluralistic Experts Group for the Uranium mines of Limousin] brings together the main conclusions and recommendations arising from three and half years of work having mobilized, at the request and with the financial support of French authorities, more than forty experts from a varying range of disciplines and backgrounds.

The mission given to GEP by the Ministers of Ecology, Industry and Health, as wellas the President of the Nuclear safety Authority, was ambitious. It was not simply a matter of conducting an exhaustive and vigorous investigation of actual impacts, but also to analyse the present situation from a technical point of view starting with actual cases to clarify the options for management and monitoring, and to make recommendations on their development in order to reduce the current impacts and to foresee those in the long term according to the preparation of a long term plan.

GEP's first step was to undertake a detailed analysis of the sites of the mining Division of Crouzille, within the Limousin area, in order to develop a broader vision of the present situation of the old uranium mining sites in France, and to propose a general approach that would be applicable all of the sites. The GEP profited, for the study of the sites, from the contributions of the ten year environmental assessment (BDE) produced by the owner of the sites, Areva NC, and from the third expertise of this BDE of the Institute of Protection for Radiation and Nuclear Safety (IRSN). This analysis was, in accordance with GEP's mission of disseminating information, interspersed with dialogue with the local stakeholders. It was also accompanied by reflections on, and feedback from, international experiences, in particular through exchanges with experiences in Germany.

In addition to the answers provided to the questions which were addressed to GEP, the group, the GEP also provides feedback on the experience gained from the implementation of a pluralist expertise group, whose interest was underlined at the time of environment studies at Grenelle Forum. From the point of view of the GEP, the experiment shows the feasibility and the relevance of a multidisciplinary approach that was also open to other various sensitivities. The proposals and recommendations made in this final report, along with the various analytical elements which could useful to the main players in their work, reflect the practical character of this broad-based consideration. Thus one can consider that the GEP already supported decisions taken in recent times by the DREAL Limousin (in the past DRIRE) and the prefecture of Haut-Vienne, then by the MEEDDM and the ASN through their circular of July 23, 2009.

This final report follows the progressive approach adopted by GEP, working through the report in a methodical manner leading to proposals for management. In the first stage, the GEP studied the current situation from several points of view. It identifies the risks specific to the former mining uranium sites and considers what assumptions could be made regarding responsibility for sites after mining; the report then makes a complete assessment of the work of remediation, the legal framework and actions required of the public authorities. In a second phase, the GEP develops an analysis of the risks and potential impacts. It introduces a systematic classification of the sites and phenomena associated with the management of the sites; from this basis the report proposes an evolution of the methods of monitoring and evaluation of the impacts. Finally, in a third stage, the report tries to bring together information for the management of the sites. The report throws some light on the objectives of management before formulating proposals for improving management in the short and medium term, and for the active preparation for the long term management.

In the light of these considerations the GEP was able to assess the difficulties resulting from the historical management of these sites and good progress made in recent years, both at the local level in Limousin, as well as at the national level. Remediation work already carried out has contributed to the control of certain risks, but did not control all the problems. Moreover, the question arises of the effectiveness of these measures in the medium and long term. Also the GEP considers that progress must be continued, with both deeper as well as generalized studies, perhaps with a ten year time scale, to establish a clear vision for the sustainable management of these sites. The strategy to be put in place to reach an end point will have to integrate many aspects of the problems, including technical, institutional and social; and to be accompanied by a programming effort with a follow-up of these actions. The work will have to be spread amongst the local stakeholders as well as integrating with the relevant territorial legal requirements. The strategy has to merge mining and radiological risks.

It is in this context that the final report attempts to develop a coherent framework of recommendations that are as operationally feasible as possible. Thus, the proposals of the GEP underline the need for an comprehensive approach, on the basis of work on the institutional perspectives, of a programme for improvement of knowledge and including a reinforcement of information and dialogue, to frame and guide the characterization of the risks and impacts, the evolution of the surveillance devices and the consolidation of the existing protection systems. These final proposals take

account of a whole range of activities undertaken by Areva NC as well as the relevant local and national government organizations; and which integrate certain recommendations already produced by the GEP within the framework of its three interim reports.

The GEP sets out six main areas of improvements, within which the GEP makes 15 major recommendations addressed to the public authorities, the owner and all of the stakeholders concerned. These recommendations, largely detailed in the report and summarized below, aim to:

A. *To renovate and clarify the institutional and legal framework for the management of the former mining uranium sites.*

The GEP calls for the creation of an institutional body to assume responsibility for the sites in the medium-term in order to give a clear direction to the required activities and to bind together the mining and radiological components of all the sites **[Recom1]**. It is necessary for example, with a suitable degree of urgency, to specify as soon as possible the process and the timetable for the transfer of responsibility for the sites currently managed by Areva NC to the public authorities. This will require identification of the entity which will become responsible for the sites. As a prelude to this transfer, it will be essential taking account of the long-term situation, it will be necessary to define precisely the operational conditions for the sites.

Despite the recent legal clarifications, in this context it is recommended to consider a revision of the regulations in order to better take into account the associated risks at the current locations and their possible evolution **[Recom2]**. It is a question, for example, of revising the mining regulations compared to the provisions currently in force in the area of radiation and environment protection, and of making more readable and operational the articulation of the policies applicable to the sites. The revision of the regulations will also have to integrate the development of the methods of evaluating impact and to support the harmonization of the regulations between the sites.

B. *To promote efforts directed at the improvement of knowledge on the sites; to continue the studies and research and to broaden their scope.*

The GEP has underlined the need for systematizing the ambitious tasks of inventory and characterization of the sites as an extension of similar activities carried out previously, in order to acquire an extensive knowledge of the potential sources of pollution **[Recom3]**. In particular, the actions envisaged must include the research of the various wastes, any independent sources of radon exhalation, and of any possible radiometric anomalies on and around the sites.

This effort must be supplemented by a strategy of studies and research to improve the understanding of the processes concerned **[Recom4]**. It is a question of developing a predictive capacity in relation to the evolution of key phenomena (hydrogeology, hydrochemistry, exhalation and transfer of radon, accumulation of radioactivity in the sediments aging of milling residues …), as well as knowledge on the toxicity of these substances, of which uranium is but one consideration. Such a strategy implies the mobilization of the relevant research organizations and the eventual creation of in-situ workshop areas.

C. *To reinforce the relevance of impact evaluations, in particular extending them to the ecosystems; to replace public exposure in the public health risks*

Impact evaluations conducted until now have essentially been limited to public radiological exposures. The results, which conclude that exposures have been approaching the legal limits, need to be refined. The GEP has formulated proposals to develop the method evaluation of dosimetric impact to be a more reliable estimate of the contribution of the sites to the various exposure pathways **[Recom5]**. At the same time it is necessary to better reflect the realistic land uses in the analysis of scenarios, and to better characterize, by measurement and/or modelling, the share of dose attributable to the sites in comparison with the natural background.

Emphasis on radio protection concerns have resulted in neglect of the evaluation of potential impacts on the public other than the radiological impact. The GEP recommends the development of an evaluation of the chemical impact on the public on the one hand, and proposes the application using a graduated approach, an evaluation of the radiological and chemical impact to the ecosystems on the other hand **[Recom6]**. The GEP stresses that the implementation of these evaluations presupposes a programme of relevant data-gathering, and of selection and formalization of the associated methods.

In addition the GEP notes that in the areas of uranium mining, the population generally has an increased exposure to natural radioactivity independent of the exposure arising from the former mining sites. This consequently underlines the need for adapting public health policies. GEP recommends the development of tools for surveillance and health monitoring tools and to intensify the policy for protection of the public against exposures to ionizing radiation **[Recom7]**. The creation of registers of potentially associated pathologies (including cancers) is an essential base for such a procedure. Additionally in these zones careful examination must be applied to water quality depending on the use, and for radon levels in any existing buildings.

D. *To develop surveillance systems at the sites and the zones potentially located under their influence.*

The devices deployed at certain sites within the framework of the current regulatory monitoring appear

sometimes to be at odds with the requirements. It is necessary to develop the current monitoring framework so as to better adapt it to the situation whilst optimizing the methods being implemented **[Recom8]**. The GEP proposes an analytical process to take descisions and rank the risks, and to identify the indicators to be monitored site by site, following some work on investigation and demonstration. It will be advisable to adapt the measurement methods to match the required precision of information, and to harmonize the approach using standard monitoring plans. In addition, the GEP recommends the upgrading of the monitoring carried out by the IRSN and to encourage measurement campaigns by other laboratories.

As a complement to this monitoring based on the concentrations in the environment, the GEP recommends implementation of monitoring of the ecosystems and habitats, based on the possible effects **[Recom9]**. In conjunction with others responsible for the protection of nature, this work will have to be based on a knowledge of the species specific to each site or sector concerned.

E. To extend the effort of refitting in order to put in place, as of today, systems that are as robust as possible for the long term, where the risks justify it.

The existing safety systems on some sites rely on measures such as the reduction of the source and restrictions of land use; these cannot be guaranteed to operate in perpetuity. In the long term degradation of such measures may lead to impacts significantly higher than those estimated today. On the basis of this report, the GEP proposes processes to develop a realistic representation of the long-term evolution of the sites **[Recom10]**. These processes result from carrying out a consideration of the residue storages, but looking ahead for all of the sites which can present a risk with respect to the long run, and in integrating a more complete range of scenarios.

Taking into account the current location of the sites, there is no simple and generic solution to develop the existing systems to become significantly more robust systems with respect to the long term. The GEP has examined various options, and calls for a technical and social consideration of the situation with all of the actors in order to reinforce the long-term robustness of the systems, starting from an non-exclusive evaluation of the various alternatives **[Recom11]**.

This consideration process should be undertaken quickly, in order to be based on the current operational capacity. The GEP recommends the specification of the decision-making process making it possible to implement in the short-term management options for the long term **[Recom12]**. This process will have to be based on a more complete evaluation of the medical, environmental, direct and indirect socio-economic costs and benefits and allow a balance between the short-term and long-term risks. It would be improved by being formalized in a legal document.

F. To continue the implementation of the principles of information and participation to make them the drivers of a truly sustainable management system for the sites

The efforts made so far to make up the historical deficit of information and participation must be increased to place these principles at the forefront of the future management of the sites. Initially this implies reinforcement of the collection and provision of the information relative to the sites and their monitoring, and the organisation of the archiving of the data, through the composition of the files and the compilation of information on the sites themselves **[Recom13]**. GEP advises that from this point of view the MIMAUSA program represents a useful asset on which such a system should be based.

The GEP considers that the participation of the local stakeholders is a powerful force to drive the long-term management and to get the work written into local project planning. Thus GEP recommends the reinforcement of the local dialogues, and in particular the role of the local Commissions of Information and Feedback (CLIS); both those already existing and others in the course of being created around the sites **[Recom14]**. It is necessary to give them a legal basis and to involve them more deeply through widening their missions. Direct forms of participation could also be developed to support the social debate and to sit and extend the range of control measures for use of the sites. The GEP consider that international contexte has to be taken into account and recommands exchanges with foreing countries.

Lastly, the GEP emphasizes the value in preserving the assets of the pluralist approach which have been developed through this project, and to support an increase in the competence of the CLIS and an acceptance of the work of the GEP by the national authorities involved (High committee with the transparency and information on the nuclear security - HCTISN, work group of the National plan of inventory management and radioactive waste - PNGMDR…). GEP recommends that the pluralist dialogue be extended at the local and national level and that consideration be given to the deepening of certain questions through a specific pluralist expertise **[Recom15]**. Such an approach will support the development of strategic elements for various issues involved in the management of the sites.

GEP's 15 recommendations for the sustainable management of the former uranium mining sites:

Institutional perspective and regulatory body	1. GEP recommends the explicit definition for the conditions stages for the transition towards establishment of a specific organisation dedicated to the affairs of former uranium mine sites.
	2. GEP recommends the continuation of the development of a modernized legal framework fully adapted to the current risks.
Knowledge of sites, studies and research	3. GEP recommends to continue and supplement the work of the census and characterization of the sites in order to have a comprehensive knowledge of the potential sources of pollution.
	4. GEP recommends development of a strategic programme of studies and research in order to strengthen the knowledge necessary for the good understanding of the processes concerned and to aid acquisition of a predictive capacity on their development.
Relevance and field of evaluation of impact, public health.	5. GEP recommends further development of the method of dosimetric evaluation that has been implemented in order to better understand the land uses would be potentially the most significant, and to enable more reliable estimation of the contribution of the mining sites to the various exposure pathways.
	6. GEP recommends strengthening of the evaluation of the chemical impacts on man and to implement, using a graduated approach, an evaluation of the radiological and chemical impacts on ecosystems.
	7. GEP recommends development of monitoring tools and health monitoring in the zones of important natural radioactivity such as the uranium-bearing areas and to intensify local implementation of the public health policies with respect to protection of the public against the exposure to the ionizing radiation.
Systems of surveillance of the sites and the environment	8. GEP recommends development of surveillance systems so as adapt them more to the current knowledge of the impacts and the risks relating to the development of the sites, also optimizing the methods of implementation.
	9. GEP recommends implementation of monitoring of the ecosystems and habitats, designed to demonstrate that the effects are weak as well on the environment as on the population.
Robustness of remediation works and long term considerations	10. GEP recommends development of a more realistic representation of the long-term evolution of the sites, whilst also broadening the field of the scenarios and sites currently being considered.
	11. GEP recommends that a technical and social consideration be undertaken of the solutions likely to reinforce, through short-term actions, the robustness of the existing systems in order to better control the long-term impacts.
	12. GEP recommends the preparation and formalization of the decision-making process to support implementation in the short-term of the long term management options.
Information and participation for sustainable management	13. GEP recommends the continuation and supplementation of the collection and the provision of the information relative to the local population and the state of knowledge of the sites, as for the monitoring installations. It also recommends that take special attention be given to the care of data files and records of information on the sites themselves.
	14. GEP recommends support for the management of the sites at the local scale, in particular by strengthening the role of the local Commissions of information and feedback mechanisms created around the sites.
	15. GEP recommends preservation of the pluralist approach which it developed through this present work. It underlines the need for maintaining a pluralist dialogue at the local and national level to reinforce the spreading of information and the follow-up of actions. Furthermore, consideration should be given to the deepening of certain questions through use of specific pluralist expertise.