

Annex 7

Questionnaire: involved actors in large disused components management

SUMMARY OF RESPONSES TO THE QUESTIONNAIRE

<p>What is the country (institutional) structure for decommissioning? Include the responsibilities for the whole process (management of liabilities, decommissioning, transport, waste treatment/storage and waste disposal). Please indicate whether organisations are public or private and whether there are important providers of services (e.g. commercial smelting).</p> <p>Please describe briefly who does what and where the responsibilities lie.</p>	<p>Belgium</p> <p>Electrabel establishing the decommissioning provisions for its NPP's</p> <p>Synatom, responsible for nuclear fuel management and will take over responsibility for decommissioning</p> <p>ONDRAF/NIRAS entrusted with provisions for decommissioning of other facilities. It also has transport responsibilities</p> <p>France</p> <p>No specific institutional structure, the responsibility is with the operator. Transport is often subcontracted and ANDRA is responsible for nuclear waste disposal.</p> <p>Germany</p> <p>The licensee or plant owner has to apply for a separate decommissioning license. Services including interim storage and treatment of residual material can be undertaken by key service providers (contractors).</p> <p>Sweden</p> <p>Facilities are jointly owned by the state and private companies. There are also companies that provide services.</p> <p>UK</p> <p>The UK does not have a single institutional structure for decommissioning, though the general principle is that the site operator (licensee) has the responsibility for performing the work on its site and arranging for radioactive waste disposal.</p> <p>Spain</p> <p>Spanish Law establishes that the State Owned Entity ENRESA is the responsible for the whole decommissioning process for nuclear facilities in Spain. It does sub contract some of the process. ENRESA is also responsible for radioactive waste</p> <p>USA</p> <p>For commercial sites the responsibility for decommissioning rests with the operator. The US government has responsibility for decommissioning all government owned facilities.</p>
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<p>Which bodies have responsibility for onsite safety regulation, discharges and disposal?</p>	<p>Belgium</p> <p>Regulation is undertaken by federal agencies.</p> <p>France</p> <p>Regulation is established by the French Government.</p> <p>Germany</p> <p>Regulatory framework is established by government, it is also responsible for construction and operation of repositories for radioactive waste. Regulatory body is licensing and supervising decommissioning. Operator remains responsible until release of facility out of regulatory control.</p> <p>Sweden</p> <p>Decommissioning is included in the license which is granted by the Government and regulated through a regulatory body.</p> <p>UK</p> <p>The UK government establishes regulation, through a number of safety transport and environment regulators. There is no specific license granted for decommissioning</p> <p>Spain</p> <p>The Spanish Nuclear Safety Council (CSN) is an independent administrative authority set up by law 15/1980</p> <p>USA</p> <p>There are several federal agencies responsible for regulation. Decommissioning activities within the United States (U.S.) are governed by the federal government's codified rules, called the <i>Code of Federal Regulations (CFR)</i>. Generally regulatory oversight of commercial nuclear facilities rests with NRC. Government owned facilities are regulated by DOE under CERLA when decommissioning.</p>
<p>Which body(s) owns the facilities?</p>	<p>Belgium</p> <p>Facilities are owned by the operators.</p> <p>France</p> <p>Facilities are owned by the operators.</p> <p>Germany</p> <p>Privately owned electric power companies (NPPs) and publicly owned facilities (Research- and Prototypereactors, Greifswald and Rheinsberg NPPs).</p> <p>Sweden</p> <p>Ownership is a complicated co-ownership.</p> <p>UK</p> <p>Ownership is complicated with a mixture of private sector companies but a single organisation responsible for decommissioning.</p> <p>Spain</p> <p>The facility operators are the owners.</p>

	<p>USA</p> <p>In general it is the facility owners or government. However there are facilities that are under a Government owned contractor operated arrangement.</p>
<p>Describe the responsibilities for funding of the decommissioning plan and disposal plan (including for oversight of funding arrangements and whether or not the funds are managed by the licensee organisation). Are they one and the same body?</p>	<p>Belgium</p> <p>Financial provision for decommissioning is by endowments from the operators.</p> <p>France</p> <p>The operators have to ensure that adequate and secured funding provisions are supplied.</p> <p>Germany</p> <p>A mixture of funding from central government and the respective Land (publicly owned facilities). Financial reserves have to be accumulated by owners of the facilities in the case of privately owned facilities.</p> <p>Sweden</p> <p>The licensee of a nuclear facility which generate or has generated residual products must pay a nuclear waste fee. The fees are collected in a fund, the Nuclear Waste Fund. This Fund is an external and fully ringed-fenced governmentally controlled and administered fund. There is also external oversight of this arrangement.</p> <p>UK</p> <p>Funding is currently provided by the state though for new build this will be by the operators via a segregated fund.</p> <p>Spain</p> <p>Regulations on fuel cycle activities requires the conclusion of contracts between ENRESA and the companies owning nuclear power plants and other fuel cycle facilities. The objective of these contracts is to regulate the collection of the financial resources for decommissioning during the operating life time of the installations.</p> <p>USA</p> <p>Funding for DOE and DOD facilities is provided by the United States government on an annual basis, provided through the government budget process. Normally, if a decommissioning project is a specific line item in the budget, funding is ensured for completion of the plan. Funding for DOE projects is dependent on congressional imposed budgetary conditions.</p> <p>Conversely, private companies that have commercial nuclear facilities licensed under the NRC are responsible for funding their decommissioning project.</p>

Whilst there are differences between countries there are some common threads. Regulation is through the state though the number of regulators involved may vary. In summary, the IAEA principles concerning independence of the regulatory body are followed. Funding arrangements vary but there are plans. Similarly, ownership of facilities is a mix of state and private. Some systems require a separate decommissioning license with Spain having the clearest demarcation of responsibilities for the decommissioning phase and waste management responsibilities.

Answers to Supplementary Questions

Only received response from Sweden – key features are

- The systems are the same
- Multiple regulators are involved and they are more wide ranging.
- Tendency to focus on transport and waste treatment plans, optioneering and early engagement.
- Transport contractor responsibility
- Use made of sea which reduces impact on general public.
- Regional focus on stakeholder engagement.

In UK a key feature is the importance of transport in view of the country infrastructure which means generally use of road or rail with some sea transport possible. This results in increase of communities and need for local engagement.

FORMAT OF QUESTIONNAIRE TO BE COMPLETED FOR EACH COUNTRY

The aim of the following is to establish an overview of the various bodies [Actors] that have responsibilities or input to the issue of large component decommissioning. In answering the intent is to cover the overall organisation and those bits that have most relevance to large components. The answers should reflect the areas from site operations to decommissioning as well as the wider issue of disposal at another location.

- *What is the country (institutional) structure for decommissioning? Include the responsibilities for the whole process (management of liabilities, decommissioning, transport, waste treatment/storage and waste disposal). Please indicate whether organisations are public or private and whether there are important providers of services (e.g. commercial smelting).*
- *Please describe briefly who does what and where the responsibilities lie. Mention any special control mechanisms that exist inside/between the institutions involved (e.g. technical expert organisations)? For example, are there institutions that control the decisions and the planned procedures of other institutions? Which institution is responsible for the choice of the decommissioning strategy?*
- *Which bodies have responsibility for onsite safety regulation, discharges and disposal?*
- *Which body(s) owns the facilities?*
- *Describe the responsibilities for funding of the decommissioning plan and disposal plan (including for oversight of funding arrangements and whether or not the funds are managed by the licensee organisation). Are they one and the same body?*

QUESTIONNAIRE RESPONSE – BELGIUM

What is the country (institutional) structure for decommissioning? Include the responsibilities for the whole process (management of liabilities, decommissioning, transport, waste treatment/storage and waste disposal). Please indicate whether organisations are public or private and whether there are important providers of services (e.g. commercial smelting).

Please describe briefly who does what and where the responsibilities lie.

Management of decommissioning and liabilities

In Belgium, a distinction is made between Nuclear Power Plants and other nuclear facilities.

NPPs

Seven commercial nuclear reactors of the PWR type are operated in Belgium by ELECTRABEL, a subsidiary of GDF-SUEZ, leading to a total installed capacity of 5.7 GWe.

By convention with the Belgian State, since 1985 ELECTRABEL was setting up provisions for the decommissioning of its NPPs. Midyear in 2003, a new law was published concerning the establishment and management of financial provisions for ultimate decommissioning of the seven nuclear power plants including the management of the spent fuel from these power plants. The provisions will both be centralised at SYNATOM², which has meanwhile been transformed into a 100% subsidiary of ELECTRABEL. The Belgian State owns a golden share in SYNATOM which gives it some specific rights such as to veto some decisions.

A Surveillance Committee has been created as a legal entity which is entrusted with the control of the establishment and the management of the financial provisions of SYNATOM: methodology of the settlement of the provisions, the investment policy, the refunding (loans) of the invested funds.

The advice formulated by the Surveillance Committee is binding for SYNATOM. With regard to its advice on the existence and sufficiency of the financial provisions for decommissioning and management of the spent fuel, the Surveillance Committee has to follow the unanimous opinion that ONDRAF/NIRAS has formulated on this matter.

SYNATOM will take over the legal responsibility for decommissioning. The management of nuclear fuel was already its responsibility.

Other nuclear facilities

The National Agency for Radioactive Waste Management and fissile material (ONDRAF/NIRAS) is entrusted by laws with the survey of the financial provisions for decommissioning of other nuclear facilities than commercial power plants. The cost evaluations and the mechanism for provisioning are analysed by the operator and presented to the Agency within the decommissioning plans and summarised within the questionnaire for the national inventory. Decommissioning and remediation costs as well as the annual necessary financial provisions are re-evaluated every five years. Nevertheless, the legal responsibility for building up sufficient provisions, for the management of the funds and for performing the decommissioning programmes remains with the operator or the owner.

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- SYNATOM, a private company is the owner of the fuel loaded and unloaded in the Belgian nuclear power plants (NPPs). The Belgian State has recognised the exclusivity of this company with regard to the management of the nuclear fuel cycle including the management of the spent fuel.

The financing of the ongoing decommissioning programmes for which no provisions were made in the past, is provided by means of annual endowments from the Federal government and with contributions from the electricity producers.

Until now, 4 Nuclear Liability Funds have been raised by the Federal Government. These funds concern the decommissioning and remediation programmes of the former EUROCHEMIC reprocessing plant (site 1 of Belgoprocess), the former waste processing site of the Nuclear Research Centre (site 2 of Belgoprocess), the Nuclear Research Centre SCK•CEN site limited to the facilities already in operation before 31st December 1989, and the Institute for Radio-Elements.

For the facilities of SCK•CEN built after the 31st December 1989, SCK•CEN is securing by its own means a decommissioning fund.

Transport, Waste Treatment/Storage and Waste Disposal

Transport, treatment, storage and disposal of radioactive waste are belonging to the missions of ONDRAF/NIRAS. The transport of radioactive waste on Belgium territory is managed by ONDRAF/NIRAS which is subcontracting it to external companies. The treatment, conditioning and storage of radioactive waste are subcontracted to Belgoprocess a subsidiary of ONDRAF/NIRAS. The operator may also treat and condition its waste. Treatment and conditioning processes need to be approved by ONDRAF/NIRAS.

Radioactive waste disposal is performed by ONDRAF/NIRAS. Conventional waste is disposed in private landfills.

Which bodies have responsibility for onsite safety regulation, discharges and disposal?

Regulation is established by the Belgian Government and/or by the Belgian Parliament. The Federal Agency for Nuclear Control (FANC/AFCN) is an independent administrative authority set up by law of 15 April 1994 and entrusted with a general mission concerning the protection against ionising radiation. FANC/AFCN is in charge of delivery licenses i.e.

- transport of radioactive material;
- nuclear installation (from commissioning up to decommissioning);
- releases of air and evacuation of effluents;
- free release of material coming from nuclear sites;
- control of non-nuclear installation (handling of Natural Occurring Radioactive Material).

Together with its subsidiary Bel V, he is performing safety audit in the nuclear facilities.

Which body(s) owns the facilities?

The operators of the facilities (Belgonucleaire, Belgoprocess, Electrabel, SPE, FBFC, IRE, JRC-IRMM, SCK•CEN) own the facilities.

Describe the responsibilities for funding of the decommissioning plan and disposal plan (including for oversight of funding arrangements and whether or not the funds are managed by the licensee organisation). Are they one and the same body?

See Management of decommissioning and liabilities.

QUESTIONNAIRE RESPONSE – FRANCE

What is the country (institutional) structure for decommissioning? Include the responsibilities for the whole process (management of liabilities, decommissioning, transport, waste treatment/storage and waste disposal). Please indicate whether organisations are public or private and whether there are important providers of services (e.g. commercial smelting).

Please describe briefly who does what and where the responsibilities lie.

In France there is no institutional structure for decommissioning. The operator of a facility is responsible for decommissioning and must make provision for the funding of decommissioning.

The companies that presently operate nuclear facilities in France must be considered as private companies even if in every board the French Government has generally the major share and can make decision³.

Decommissioning is therefore performed under the responsibility of the operator. Waste conditioning can be performed on site but can also be subcontracted to external companies (for instance to SOCODEI for incineration and melting services or to ANDRA for compaction services).

Transportation is subcontracted by decommissioners to private companies.

Nuclear waste⁴ disposal is performed by ANDRA that is a State owned company in a contractual framework with the companies that used ANDRA's services. Conventional wastes are disposed in private landfills.

Which bodies have responsibility for onsite safety regulation, discharges and disposal?

Regulation is established by the French Government.

The Nuclear Safety Authority (ASN) is an independent administrative authority set up by law 2006-686 of 13 June 2006 concerning nuclear transparency and safety (known as the "TSN law"). ASN is tasked, on behalf of the State, with regulating nuclear safety and radiation protection in order to protect workers, patients, the public and the environment from the risks involved in nuclear activities. It also contributes to informing the citizens.

TSN law improves and clarifies the status of ASN with regard to nuclear safety and radiation protection. ASN thus increases its independence and its legitimacy with respect to those in charge of promoting, developing and carrying out nuclear activities. It enjoys a new legal foundation and a status comparable to that of its counterparts in other industrialised nations. It also has enhanced powers enabling it to penalise violations and take all necessary urgent measures.

The core duty of ASN is:

- Regulations

ASN contributes to drafting of regulations, by giving the Government its opinion on draft decrees and ministerial orders, or by issuing technical regulatory decisions. ASN is consulted on the draft decree and ministerial order of a regulatory nature related to nuclear safety.

3. In AREVA that operates conversion plants for uranium, enrichment plants, fuel fabrication plants (for UOX and MOX fuels), reprocessing plants; public shares are 87% of capital. In EDF shares that are owned by the State are 84%. CEA for nuclear research and ANDRA for waste management are State owned companies but the general rule is valid for them.

4. A nuclear waste is waste that is generated in a nuclear facility in an area where it is, may be or may have been contaminated or active. It has to be managed in a route with reinforced traceability.

ASN also makes the individual decisions stipulated in the Public Health Code.

It can take decisions in technical regulations to complete the procedure for implementing decrees and orders related to nuclear safety and radiation protection, except those related to occupational medicine. These decisions are approved by the ministers in charge of nuclear safety, for those of them who are related to nuclear safety, or ministers responsible for radiation protection, for those of them who are related to radiation protection.

ASN can also order individual decisions and impose requirements as specified by law TSN.

ASN instructs authorization to commission or decommission nuclear facilities and makes proposals to the Government on the decrees. It issues the requirements for such facilities.

Inspection

ASN checks compliance with the rules and specifications applicable to the nuclear facilities. ASN also has appropriate powers of enforcement and punishment.

- Information

ASN informs the public and other stakeholders (local information committees, environmental protection associations, etc), about its activities and the state of nuclear safety and radiation protection in France.

In the event of an emergency, ASN assists the Government.

It in particular sends the competent authorities its recommendations regarding the civil protection measures to be taken.

Regarding safety generally ASN provides to operators safety objectives to be achieved for the design, for operation or for dismantling of facilities. These objectives, as well as good practices, are described in safety rules. ASN performs an expertise of the technical means that are proposed by the nuclear operator. The way the operator has to demonstrate the compliance with the safety objectives is not prescribed by ASN.

It should also be underlined that, according to the decree of the 2nd of November 2007, when an operator wants to make minor modifications in the design or in the operational mode of a facility he has to submit a file to ASN. Another option is the implementation in the operator's organization of an independent assessment commission to assess the proposed modifications. This organization, its area of work have to be approved by ASN and can be audited. Its program of work has to be provided to ASN.

These processes are valid for construction of nuclear facilities, including waste treatment facilities and disposal facilities⁵, operation and dismantling.

Which body(s) owns the facilities?

The operators of the facilities (CEA, EDF, AREVA, ANDRA) own the facilities.

Describe the responsibilities for funding of the decommissioning plan and disposal plan (including for oversight of funding arrangements and whether or not the funds are managed by the licensee organisation). Are they one and the same body?

According to the waste act 2006-739 of the 28th of June 2006, the operators have to estimate cautiously decommissioning costs and waste management costs. It includes the costs all phases of decommissioning: decommissioning, conditioning, treatment, storage, transportation, disposal.

5. However this regulation is not valid for very low level waste disposal facilities, because of the activity to be managed. However ASN supervises radiation protection in these disposal facilities.

They have to establish provisions relating to these charges and assign exclusively to assets necessary to cover these provisions. They have to submit every three years a report to the administrative authority (evaluation of conditions, calculation methods, choices about assets and their management) and annually update the report and immediately notify of any important event in this area.

Furthermore a National Commission is created to check the adequacy of provisions for future expenses and asset management; it submits a report to Parliament and the High Committee for Transparency and information on nuclear safety; this report is public.

QUESTIONNAIRE RESPONSE - GERMANY

What is the country (institutional) structure for decommissioning. Include the responsibilities for the whole process. Indicate whether organisations are public or private and whether there are important providers of services?

What are the responsibilities and what are the control mechanisms between the institutions involved. Which institution is responsible for the choice of the decommissioning strategy?

When a nuclear facility is to be decommissioned, the licensee or plant owner has to apply for a decommissioning licence on the basis of the Atomic Energy Act (AtG). He chooses the decommissioning strategy and he remains responsible for safety and accomplishment of decommissioning until the site is released from nuclear regulatory control. The application documents include a safety assessment of the planned measures and have to be submitted to the regulatory body of the respective Federal State (Land), who involves authorised expert organisations for assessment.

The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) supervises the licensing activities of the Federal States and harmonises the appliance of the legal framework. In this context, the BMU may request technical and scientific advice from the Reactor Safety Commission (RSK), the Commission on Radiological Protection (SSK), the Nuclear Waste Management Commission (ESK), expert organisations (for example, Society for Facility and Reactor Safety (GRS)), and the Federal Office for Radiation Protection (BfS). If necessary, BMU may give directives to the regulatory body of the respective Federal State (see also Annex 2).

Within the framework of supervision (accompanying control), the regulatory body of the respective Federal State must ensure that, in particular, the provisions of the decommissioning license are considered. It has also to decide on the termination of a licence and the respective release of an operator from its obligations. Independent authorised experts are typically involved to carry out supplementary controls and assessments by order of the regulatory body.

For the practical work during decommissioning of nuclear facilities, adequate permit procedures are required that enable supervision and can be applied for planning and performance of specific dismantling measures.

An important provider of services is the Energiewerke Nord GmbH (EWN), who is decommissioning and dismantling the Greifswald Nuclear Power Plant (KGR) and the Rheinsberg NPP (KKR). The EWN took over the Arbeitsgemeinschaft Versuchsreaktor GmbH (prototype reactor) and the WAK Wiederaufbereitungsanlage Karlsruhe Rückbau- und Entsorgungsgesellschaft mbH (prototype reprocessing plant) as subsidiary companies. Besides the dismantling activities, the interim storage of the spent fuel elements and the treatment and interim storage of residual material (including large components) and radioactive waste are main tasks of EWN. The only shareholder of the EWN is the Federal Ministry of Finance.

Another provider of services is the Gesellschaft für Nuklearservice mbH (GNS), which is the lead company of nuclear economy companies in the field of waste management and decommissioning.

The company Siempelkamp Nukleartechnik (NIS Ingenieurgesellschaft is a subsidiary company hereof) provides comprehensive services in planning of decommissioning as well as melting of radioactive contaminated scrap metal.

In Germany the Federal Government is responsible for construction and operation of repositories for radioactive waste. Concretely the Federal Office for Radiation Protection (BfS) is consigned to do this task (operator). A double security and surveillance system has been established for radioactive waste repositories in Germany. The repositories are subject to control through the BfS Repository Surveillance unit, furthermore they are supervised by the Federal Ministry for the Environment, Nature Conservation and

Nuclear Safety (BMU). The BfS Repository Surveillance unit works on a professionally independent basis and holds a special organisational position, which is allocated to the vice-president of BfS. It has special authorities and instruments in order to be able to issue necessary decrees at any time that have to be observed by the other BfS organisational units. For the licensing (planning approval) of repositories for radioactive waste the respective Federal State (Land) is responsible. According to the polluter pays principle the producers or rather the deliverers of radioactive waste have to pay all costs related to disposal of radioactive waste.

Which body(s) owns the facilities?

The operators and owners of nuclear power plants (NPP) in Germany are privately owned electric power companies, which are responsible for operation as well as for decommissioning of the facilities. Also commercial nuclear fuel cycle facilities are privately owned facilities. Prototype reactors and the Greifswald and Rheinsberg NPP are publicly owned or inherited facilities. The Energiewerke Nord GmbH (EWN) is decommissioning and dismantling the Greifswald NPP (KGR) and the Rheinsberg NPP (KKR). The only shareholder of the EWN is the Federal Ministry of Finance. The EWN took over the Arbeitsgemeinschaft Versuchsreaktor GmbH (prototype reactor) and the WAK Wiederaufbereitungsanlage Karlsruhe Rückbau- und Entsorgungsgesellschaft mbH (prototype reprocessing plant) as subsidiary companies.

The operators of research reactors are universities and research centres which are financed by the Federal Government, thus being the owner of the research reactors. In so far, costs of operation and decommissioning of research reactors fall within the government's responsibility.

What are the responsibilities for funding decommissioning and disposal?

In the case of publicly owned or inherited facilities (research reactors; facilities within research centres or at universities; prototype reactors and the Greifswald and Rheinsberg nuclear power plants), decommissioning funds are being provided within the annual Federal budget. In the case of research and prototype facilities the Federal Government typically covers 90 % of the costs, while the rest is borne by the respective Land. The decommissioning of the nuclear power plants in Greifswald and Rheinsberg, inherited from the former German Democratic Republic, is completely financed by the Federal Government. Financing includes all expenses incurred for the post-operational and transition phase, disposal of the fuel assemblies, execution of the licensing procedure, dismantling of the radioactive part of the facility, and disposal of the radioactive wastes, including all preparatory steps.

In the case of privately owned facilities (for example, NPPs and fuel cycle facilities) financial reserves have to be accumulated during the operational phase by the owner of the respective facility. The legal basis for accumulating and managing of financial reserves is provided by an interaction of several laws:

- the Atomic Energy Act (AtG) requires the removal of waste
- the Commercial Code (HGB) requires to accumulate financial reserves for future liabilities
- the Income Tax Law (EStG) regulates the taxation of reserves.

These reserves include the costs of the post-operational phase in which the facility is prepared for dismantling after its final shut-down (including removal of fuel elements and operational waste), the costs for the licensing procedure and supervision, the costs of dismantling (dismantling and interim storage of all components and all buildings of the controlled area), and the cost of the interim and final storage of all radioactive waste from decommissioning. The reserves are held in the portfolio of and managed by the owners of facilities. Reserves reduce the income of the operators subject to taxation.

Annual cost calculations have to be prepared in order to justify the amount of the respective reserves which are reviewed by tax authorities.

QUESTIONNAIRE RESPONSE - SWEDEN

•What is the country (institutional) structure for decommissioning? Include the responsibilities for the whole process (management of liabilities, decommissioning, transport, waste treatment/storage and waste disposal). Please indicate whether organisations are public or private and whether there are important providers of services (e.g. commercial smelting)

Please describe briefly who does what and where the responsibilities lie.

The Swedish NPPs are, in different constellations, jointly owned and controlled by the state and the private industry. Under Swedish law, the holder of a license to operate a nuclear facility is primarily responsible for the safe handling of spent nuclear fuel and radioactive waste, as well as decommissioning and dismantling of the facility. With help from SKB (Swedish Nuclear Fuel and Waste Management Company), jointly owned by all NPP utilities, to assist them in executing their responsibility for all handling, transportation and storage of spent fuel and radioactive waste outside the nuclear power plants, as well as for disposal of spent nuclear fuel and low and intermediate level nuclear waste.

Studsvik Nuclear AB supply services to the nuclear industry e.g. management to practical dismantling work and the subsequent waste treatment process of dry and metallic waste by burning and melting. They are also responsible for management of legacy waste but the waste is disposed off in SKBs facilities.

Please describe briefly who does what and where the responsibilities lie. Mention any special control mechanisms that exist inside/between the institutions involved (e.g. technical expert organisations)? For example, are there institutions that control the decisions and the planned procedures of other institutions? Which institution is responsible for the choice of the decommissioning strategy?

Decommissioning is included in the License for nuclear activities, which were obtained from the Swedish Government in connection with the construction, and operation of the plant. It covers the activities undertaken at the facility from construction to the final dismantled unit. Related to the construction of a nuclear power plant also requires a preliminary planning for the future decommissioning.

The licensees must comply with applicable regulatory requirements and establish plans for future decommissioning and dismantling. Planning for decommissioning and execution of dismantling work shall be carried out in cooperation between the licensees of nuclear reactors and SKB but the main responsibility lies on the licensee for the nuclear reactor, which is responsible for planning, licensing issues and the implementation of the physical demolition, and for treatment of waste. This also includes determination of what strategy to apply to each power plant and planning for the entire plant decommissioning.

From a national point of view, it is necessary to coordinate between the nuclear facilities. SKB has been delegated this task from the Swedish nuclear power companies and is responsible for study and report on appropriate technology and making estimates of the cost, waste quantities and waste types for decommissioning and dismantling of Swedish NPPs.

Sweden has a forum in which the utilities work to get coherence in both technical and strategic issues called the 'Decommissioning Group' (Rivningsgruppen). In this group all license holders for NPPs participates together with SKB. The group is organized by SKB and advises SKB on matters concerning technology and logistics issues related to decommissioning such as choice of technologies and processing and handling of waste. This group also gives recommendations and support to funding arrangements for the decommissioning of the nuclear facilities.

Which bodies have responsibility for on site safety regulation, discharges and disposal?

The Swedish Radiation Safety Authority (SSM) is a regulatory authority under the Swedish Government, Ministry of Environment with a gathered national responsibility within the areas of nuclear safety and radiation protection. SSM reports to the Ministry of the Environment.

Work involving radiation is regulated in a series of regulations, based on The Radiation Protection Act, the Radiation Protection Ordinance, the Act on Nuclear Activities and the Swedish Environmental Code. The requirements are also based on the international recommendations for ionizing radiation, based on the International Radiation Protection Commission's (ICRP) internationally recognized principles, i.e. justification, optimization and dose limitations.

Responsibility for radiation safety lies entirely on the licensees that operate with radiation. SSM, as a regulator, inspects and monitors that the nuclear installation operates in a safe manner, follows rules and requirements and take their responsibilities. SSM regulates management of spent fuel, radioactive waste (discharges of radioactive substances) and decommissioning, physical protection of nuclear materials and the transport of radioactive material.

Which body(s) owns the facilities?

Swedish nuclear power station consists of a complicated co-ownership. Largest owners are - Vattenfall AB, which is wholly owned by the Swedish state, Finnish Fortum and German Eon.

Describe the responsibilities for funding of the decommissioning plan and disposal plan (including for oversight of funding arrangements and whether or not the funds are managed by the licensee organisation). Are they one and the same body?

The licensee of a nuclear facility which generate or has generated residual products must pay a nuclear waste fee. The fees are collected in a fund, the Nuclear Waste Fund. This Fund is an external and fully ringed-fenced governmentally controlled and administered fund.

The fee shall cover the licensees' share of the total costs for management and disposal of all spent fuel and nuclear waste generated from all nuclear facilities also for decommissioning and dismantling. The most important actions are to plan, build and operate the facilities and systems needed, also to conduct research and development related to this.

SSM is responsible for the review of the cost estimates and to suggest the level of fees to be paid by licensees to the Nuclear Waste Fund. Furthermore, SSM is responsible to control that the nuclear utilities has made the payments to the Fund and also to audit the disbursements.

SKB is responsible to establish an overall cost estimate for all licensees and for SKB's own costs. The estimates are based on SKBs current planning for management (transport and disposal) of spent fuel and radioactive waste. A significant cost item is the decommissioning of the nuclear installations. These costs are estimated in collaboration between SKB and the utilities. Necessary future work is presented in SKBs RD & D programs and shall be submitted to the government every three years.

Estimates of decommissioning costs for nuclear power plants have been based on estimates for a reference plant and transferred to other plants by scaling. Today, unit and site specific decommissioning are successively performed for all NPPs. These studies focus on estimates of waste volumes and the radionuclide inventory as an input to the design and safety assessment of the repository for decommissioning waste but they also includes updates of the estimates of decommissioning costs.

QUESTIONNAIRE RESPONSE – UK

•What is the country (institutional) structure for decommissioning? Include the responsibilities for the whole process (management of liabilities, decommissioning, transport, waste treatment/storage and waste disposal). Please indicate whether organisations are public or private and whether there are important providers of services (e.g. commercial smelting)

Please describe briefly who does what and where the responsibilities lie.

The UK does not have a single institutional structure for decommissioning, though the general principle is that the site operator (licensee) has the responsibility for performing the work on its site and arranging for radioactive waste disposal. The organisation ultimately makes the decision on the work to be undertaken. The Nuclear Decommissioning Authority (NDA), a non-departmental public body, owns a number of sites and has responsibilities through the Energy Act 2004, for the decommissioning and clean-up of the UK's civil public sector nuclear sites. This includes:

- developing UK-wide nuclear Low Level Waste (LLW) strategy and plans;
- the long-term management arrangements for the UK's higher radioactive wastes; and
- 19 former UKAEA and BNFL sites.

NDA does not directly manage the facilities that it owns. It contracts out the delivery of site programmes through management and operation contracts with licensed operators, Site Licence Companies (SLCs), at each site. The SLCs manage sites, including preparing site plans, performing and sub-contracting work.

The remainder of the nuclear industry in UK is operated by commercial companies that have responsibility for all operational activities. In the case of the British Energy, fleet of reactors the liabilities will at the end of life pass to the NDA and the decommissioning activities managed as described above.

In the case of new build a decommissioning fund is being set up which the operators will fund with the expectation that at the end of operational life they will be responsible for decommissioning.

Again, the primary responsibility for carrying out the decommissioning activities rests with the operator. The operator may however contract out work, such as waste conditioning either on site to other companies but the responsibility for delivery still rests with the site operator.

Transportation is a mixture, with the use of private companies as well as facilities owned by the NDA or the site operator.

Which bodies have responsibility for onsite safety regulation, discharges and disposal?

The UK Government establishes regulation.

The Health and Safety Executive was set up by statute in 1974 and has responsibility for regulation of Health and safety across all work activities in the UK. The Nuclear Directorate, which is part of HSE, has responsibility under the Nuclear Installations Act for the regulation of nuclear licensed sites. ND is tasked with regulating nuclear safety, accumulation of radioactive waste and radiation protection at the sites in order to protect the public from the hazards arising from ionising radiations.

HSE regulates the nuclear industry through its Nuclear Directorate (ND). The Directorate's primary goal is to ensure that those it regulates have no major nuclear accidents. It is responsible for the UK safety regulation of nuclear power stations, nuclear chemical plants, decommissioning, defence nuclear facilities, nuclear safety research and strategy and for civil nuclear operational security and safeguards matters.

Through its own regulation and in partnership with other regulators and agencies, ND works to deliver its mission « *To protect people and society from the hazards of the nuclear industry* ». ND also takes responsibility for approving security arrangements within the industry, and for securing compliance with those arrangements. It also oversees safeguard measures to verify that States comply with their international obligations not to use nuclear materials for nuclear explosives purposes.

The Environment Agency (England and Wales) and the Scottish Environment Protection Agency (Scotland) (referred to as the environment agencies) were established by the Environment Act 1995 and have responsibilities for the protection of the environment and members of the public. The environment agencies have responsibilities under the Environmental Permitting Regulation (England and Wales) 2010 and the Radioactive Substances Act 1993 (for Scotland) for the regulation of radioactive discharges from nuclear licensed sites; subject to conditions that ensure minimisation of discharges in line with the UK Discharge Strategy and protection of the environment. Additionally the environment agencies are the responsible bodies for authorising radioactive waste disposal facilities in the UK.

The environment agencies regulate under some fundamental principles;

- optimisation of protection on the basis that radiological doses and risks to workers and members of the public from a source of exposure should be kept as low as reasonably achievable (the ALARA principle);
- application of limits and conditions to control discharges from justified activities;
- sustainable development;
- the precautionary principle;
- the polluter pays principle;

Transport of radioactive material is currently regulated separately by the department of transport.

Which body(s) owns the facilities?

The position is complex. NDA own the sites as described in the response to question one but for the non-NDA, “estate” ownership rests with the operator of the facility or in the case of defence facilities, they are owned by the crown.

Describe the responsibilities for funding of the decommissioning plan and disposal plan (including for oversight of funding arrangements and whether or not the funds are managed by the licensee organisation). Are they one and the same body?

The current regulatory framework in UK makes no distinction between the various phases from operations through to defueling and decommissioning. It is the operators who are responsible. All operators have a responsibility to prepare decommissioning plans as part of regulation plus where applicable NDA require a near term work plan and expect a life cycle plan. Funding for decommissioning is provided currently by the state for the NDA estate and for British Energy reactors. However, recent legislation, the Energy Bill 2008, ensures that operators of new nuclear power stations accumulate funds to meet the full costs of decommissioning and their full share of the waste management costs. A funded decommissioning plan is also required.

QUESTIONNAIRE RESPONSE – SPAIN

•What is the country (institutional) structure for decommissioning? Include the responsibilities for the whole process (management of liabilities, decommissioning, transport, waste treatment/storage and waste disposal). Please indicate whether organisations are public or private and whether there are important providers of services (e.g. commercial smelting)

Please describe briefly who does what and where the responsibilities lie.

Spanish Law establishes that the State Owned Entity ENRESA is the responsible for the whole decommissioning process for nuclear facilities in Spain.

As such, ENRESA responsibilities cover aspects such as:

- Managing the national Decommissioning Fund, fed from fees to the Spanish nuclear utilities, all of them 100% private entities
- Taking over the License of the nuclear sites to be decommissioned until the end of the D&D process and finalization of the corresponding Licensing Termination process
- D&D planning, including cost estimation and required funds appraisal
- Overall managing of the D&D project, including contractors selection and supervision
- Handling, transport and disposal of all radioactive wastes generated during the decommissioning project

Although the final responsibility of managing D&D projects belongs to ENRESA, it usually subcontracts large packages of work, under both fixed price and T&M terms, to engineering or service companies.

Radioactive waste disposal is also under exclusive responsibility of ENRESA, which is the owner and operator of the “El Cabril” LILW and VLLW Disposal facilities. Cleared materials are sent to dedicated recyclers/handlers, while conventional wastes are disposed in public or private landfills.

Which bodies have responsibility for site safety regulation, discharges and disposal?

The Spanish Nuclear Safety Council (CSN) is an independent administrative authority set up by law 15/1980.

In accordance with the provisions of that Law, the top management bodies of the Nuclear Safety Council are the plenary and the Presidency, which will act in exercising their respective roles in compliance with the principles established in article 4.3 of the aforementioned Law 15/1980, of April 22nd.

The Plenary of the Council is the visible head of the CSN (collegiate organisation) and is made up of the president and four counsellors, the election of which follows a rigorous democratic process in the Spanish Parliament.

During their term, which lasts six years, the members of the Plenary oversee the correct compliance of the functions and obligations of the organisation with respect to Spanish society, which focus basically on the surveillance and control of nuclear facilities and those using ionising radiations.

The CSN supervises safety in the use of radioactive materials in medicine, industry and research, the control of wastes, the transport of materials, the protection of professionally exposed personnel and the impact that radiations and releases might have on the public and the environment.

Within these realms of competence the authority of the CSN is absolute. Its reports are binding when the objective is to impose conditions of safety and protection or to refuse a permit or authorisation. Likewise, the organisation has the power to interrupt the operation of a facility if it determines that it is unsafe.

The core functions of CSN are:

- proposals to Government for regulations and standards
- dictate obligatory standards on its own initiative
- control of facilities operation
- action in the event of emergencies
- reporting on facility projects
- radiation dose control.
- environmental surveillance.
- granting of personnel licences.
- performance and promotion of research plans
- information to the public opinion and the Parliament
- relations with the State Administrations.
- relations with other similar foreign and international organisations.

Which body(s) owns the facilities?

The operators of the facilities (Gas Natural, ENDESA, IBERDROLA, NUCLENOR, ENUSA, etc) are their owners and are granted the corresponding operating licenses.

However, when a facility is going to be dismantled or decommissioned, the site license is temporarily transferred to ENRESA, although the prior operator maintains the bare site ownership.

Once ENRESA has finalized the D&D project and achieved the Termination of the License (LTP), the right of use of the cleared site is returned to the owner, be it as Brown Site (In case of conditional clearance for Industrial scenario) or as Green Field (Unconditional clearance for unrestricted use).

Describe the responsibilities for funding of the decommissioning plan and disposal plan (including for oversight of funding arrangements and whether or not the funds are managed by the licensee organisation). Are they one and the same body?

Regulations on fuel cycle activities requires the conclusion of contracts between ENRESA and the companies owning nuclear power plants and other fuel cycle facilities. The objective of these contracts is to regulate the collection of the financial resources for decommissioning during the operating life time of the installations.

These regulations were revised in 2003 to apply the polluter pays principle in a more direct manner. Whereas prior to 2003 a general fee was applied to all electricity producers, since 2004 a more complex system is applied where nuclear utilities bear the bulk of the expenses.

These amounts are allocated to the build-up of a interest-bearing fund, managed by ENRESA. According to the corresponding royal decrees, the revenues transferred to the fund arise from:

- Supply and access tariffs proportional to electricity sales. The applied percentages are set by the royal decree establishing the electricity tariff for each year.

- Direct billing to operating NPP licensees of specific amounts resulting from multiplying the gross kilowatt-hours generated by each plant in each calendar month by a plant-specific unit value, to be revised annually and established by a royal decree.
- Fees collected for the management of radioactive wastes arising from the manufacturing of fuel assemblies and for the dismantling of the facilities at which such fuel assemblies are manufactured.
- Billing to the operators of radioactive facilities generating radioactive wastes and involved in medicine, industry, agriculture and research, via tariffs approved by the Ministry of Industry, Tourism and Trade.
- Any other revenue collection method not contemplated in the previous paragraphs.

The financial management of the fund by ENRESA is governed by the principles of security, profitability and liquidity. The total amount shall cover the costs related to the activities contemplated in the General Radioactive Waste Plan (GRWP). For nuclear power plants, a 40 years service lifetime is assumed in the calculation.

Every six months ENRESA has to produce a report on the state of the fund.

The GRWP includes activities regarding the management of radioactive waste, spent fuel as well as dismantling and decommissioning of both nuclear facilities and as a result of the uranium mining and milling activities performed prior to 1984.

The GRWP is revised every four years or upon request of the Ministry of Industry, Tourism and Trade. Besides, during the first six months of every year, ENRESA draws up an updated economic-financial study of the costs of the activities contemplated in the GRWP. Furthermore each year a technical-economic assessment is submitted to justify the suitability of the annual budget for the next financial year and to provide forecasts for the next three years.

QUESTIONNAIRE RESPONSE – USA

What is the country (institutional) structure for decommissioning? Include the responsibilities for the whole process (management of liabilities, decommissioning, transport, waste treatment/storage and waste disposal). Please indicate whether organisations are public or private and whether there are important providers of services (e.g. commercial smelting).

Decommissioning activities within the United States (U.S.) are governed by the federal government's codified rules, called the *Code of Federal Regulations (CFR)*. Within the overall governing structure, primary responsibility for decommissioning nuclear facilities is shared by two separate agencies; one for the decommissioning of commercial nuclear facilities; and one for non-commercial, mostly defense-related (but also other) nuclear facilities. More specifically, the Nuclear Regulatory Commission (NRC) oversees the decommissioning of commercial nuclear reactors and facilities (and a few DOD and DOE facilities), while the U.S. Government is responsible for the decommissioning of all Government owned nuclear facilities. For the Government owned facilities, the U.S. Department of Energy (DOE) and the U.S. Department of Defense (DOD) are responsible for implementing the entire decommissioning process, which was established by the Atomic Energy Act of 1954. For the DOE, the decommissioning process is defined and directed by DOE Order 430.1B and its associated guides, which identify specific requirements to be followed for decommissioning activities, as well as DOE Order 435.1 Radioactive Waste Management and 10 CFR 835 which covers health and safety regulations.

In addition, when defense-related facilities are undergoing decommissioning, other U.S. agencies can regulate activities associated with decommissioning. For example, during decommissioning projects, the U.S. Environmental Protection Agency (EPA) can implement regulations under the Comprehensive, Environmental Response, Compensation and Liability Act of 1980 (CERCLA) and the Resource Conservation and Recovery Act of 1976 (RCRA) to ensure that contaminated debris and/or radioactive waste is cleaned up to proper levels and safely shipped, treated and disposed of at properly permitted facilities. The U.S. Department of Transportation (DOT) also regulates activities related to the transport of materials and wastes generated during decommissioning of both commercial and non-commercial nuclear facilities.

Life Cycle of a DOE Facility

In order to fully comprehend the overall structure for decommissioning nuclear facilities within the federal government, it is essential to understand the total "life cycle" of a DOE defense-related facility, and how that facility moves from its operational stage to shutdown, and to eventual decommissioning.

When a DOE facility reaches the end of its life cycle, it then progresses through three primary phases: **(1) transition; (2) disposition; and (3) post-decommissioning.**

Transition begins when a facility is determined to be surplus and is no longer required for any agency mission. An engineering-planning evaluation is performed to define the set of conditions that will determine: (1) the final disposition of the surplus facility; (2) its wastes; and (3) the planned future land use (referred to as the "end-state"). This evaluation is essential in order to identify the resources needed for decommissioning activities. Identification of the end-state is normally conducted in collaboration with federal and state regulators, local community planners, tribal governments and various other stakeholders.

Disposition usually includes deactivation, decommissioning, and any surveillance & maintenance (S&M) activities. After a facility's operations are shut down, deactivation is typically performed. Deactivation removes the facility from "active service" and places it in a safe and stable condition that can be economically monitored and maintained, until

decommissioning can occur. The deactivation process ensures adequate protection of the worker, public health and safety, and the environment. Deactivation tasks typically include removal of hazardous and radioactive materials and fuel, and the draining and/or de-energizing of non-essential systems.

During decommissioning, the facility may be decontaminated and/or dismantled, and then released, demolished, or entombed. Radiological decontamination ensures that all radioactive components are removed, all surfaces are cleaned, and radioactive waste is properly packaged and sent to an appropriate disposal facility. Dismantlement is the removal of equipment, fixtures, fittings, etc. from a structure, followed by the controlled breaking of the structure into pieces and removal of them from the facility. Demolition is the controlled tearing-down of a structure, usually without the sequential breaking involved with dismantlement.

S&M activities continue throughout the decommissioning process until the facility can be released for unrestricted use. Surveillance encompasses any activity at a facility that involves periodic inspection of a facility, equipment, or structure. Surveillance is performed to demonstrate compliance, identify problem areas requiring corrective action, and determine the facility's present environmental, radiological, and physical condition. Maintenance includes any activity performed at a facility, on a day-to-day basis, required to sustain the property in a condition suitable for its designated purpose. Maintenance includes preventative, predictive and corrective maintenance.

The Post-Decommissioning Phase includes long-term monitoring and/or remedial action to comply with overall site plans and regulatory requirements. S&M activities conducted throughout the life of the decommissioning project are converted to long-term S&M after decommissioning. Sites may be transferred to remedial action projects so that final cleanup of adjacent soil or groundwater can be performed, in accordance with environmental regulatory requirements and future land and facility uses.

Please describe briefly who does what and where the responsibilities lie. Mention any special control mechanisms that exist inside/between the institutions involved (e.g. technical expert organisations)? For example, are there institutions that control the decisions and the planned procedures of other institutions? Which institution is responsible for the choice of the decommissioning strategy?

As mentioned in question number one above, decommissioning of nuclear facilities involves different government agencies, depending on whether the facility is commercial or Government owned, such as those owned by DOE. For commercial nuclear reactors, the actual owners of the plant, such as a power company, are responsible for choosing the decommissioning strategy and conducting the work. Commercial firms frequently perform their own D&D work, but can, and often do, hire contractors that specialize in such work. Both NRC and DOE have prepared guidance and directives for licensees and contractors to follow. The DOE performs its own decommissioning activities on defense-related facilities, using various prime and subcontractors to complete the work. As previously noted, the DOE adheres to guidelines established under the Atomic Energy Act of 1954, and follows the specific requirements identified in DOE Order 430.1B, 435.1 and 10 CFR 835.

When undergoing decommissioning, DOE facilities and sites are regulated under CERCLA, as a result of a joint policy agreement between EPA and DOE that specifically addresses DOE decommissioning projects and designates a preference for CERCLA to oversee the work, and to ensure that cleanup is performed to established safe levels. Under the joint policy, decommissioning activities are normally conducted as non-time critical removal actions under CERCLA response authority (unless the circumstances at the facility make it inappropriate). However, non-time-critical removal actions are also flexible enough to be implemented at facilities not governed under CERCLA. Lastly, decommissioning activities adhere to the community relations and public participation requirements established by CERCLA, the National Contingency Plan (NCP), and DOE policies.

Which bodies have responsibility for on-site safety regulation, discharges and disposal?

Safety Regulation

As identified earlier in this document, several federal agencies are responsible for aspects of the decommissioning process. The agencies involved in regulating or providing oversight to the decommissioning process include the DOE, NRC, EPA, DOT, the Occupational Safety and Health Administration (OSHA), and the Defense Nuclear Facilities Safety Board (DNFSB). Individual states also may have some regulatory authority to oversee decommissioning projects.

The DOE regulates and oversees nuclear facilities that are owned by DOE, including being responsible for managing the radioactive wastes generated during DOE's decommissioning. The Nuclear Policy Act of 1982 centralized the long-term management of high level nuclear waste, including spent nuclear fuel from commercial reactors and mandated construction of a safe and permanent nuclear waste repository by DOE. In 1987, the United States Congress amended the Nuclear Policy Act and designated Yucca Mountain as the only site to be considered as a repository. The President's Budget Request to Congress for FY 2011 included a new U.S. policy "*...the Administration determined that developing a repository at Yucca Mountain Nevada is not a workable option and has decided to terminate the Office of Civilian Radioactive Waste Management (OCRWM). The Nation needs a different solution for nuclear waste disposal.*" The Secretary of Energy established a Blue Ribbon Commission on America's Nuclear Future in January 2010 to evaluate alternative approaches for managing spent fuel and HLW from commercial and defense activities. The Blue Ribbon Commission on America's Nuclear Future is conducting a comprehensive review of policies for managing the back end of the nuclear fuel cycle. It will also provide recommendations for "*...developing a safe long-term solution to managing the Nation's used nuclear fuel and nuclear waste.*" A final report will be submitted to the Secretary of Energy within 24 months of the establishment of this Commission (January 2012).⁶

NRC governs the decommissioning process for facilities not owned by the government, and ensures that during the entire decommissioning process the health and safety of the public is not jeopardized. NRC regulations were established to provide safe cleanup of radioactively-contaminated plant systems, structures, and safe removal of radioactive fuel. Similarly, the OSHA is responsible for worker safety and other health aspects during decommissioning activities.

The DNSFB oversees activities across DOE's nuclear weapons complex. The DNSFB is an independent federal agency, established by Congress in 1988, which requires DOE to carry out its activities in a manner that ensures the safety of the public, workers and the environment.

Regulation of Disposal and Discharges

When facilities are undergoing decommissioning, radioactive and hazardous waste is present, and must be contained to prevent contamination of the surrounding environment. The EPA's primary responsibility is to protect human health and natural resources. The EPA enforces environmental laws, sets safe levels for contaminants, monitors pollution, performs research and promotes pollution prevention, in an effort to improve and preserve the quality of the environment.

Typically hazardous/radioactive waste is transported to a properly permitted location for safe storage. The DOT, along with NRC and the EPA, regulates the transport of hazardous and radioactive waste, including establishing detailed specifications for shipping

6. See <http://www.BRC.gov>.

containers. DOT's transportation criteria ensure the safe transport of decommissioning waste on roads and railways.

State governments may also have some regulatory authority over decommissioning activities. These may include material release criteria, storage of radioactive materials, and packaging, transportation and disposal of chemical waste. It is important to note that states' regulations cannot be less restrictive than those set by the EPA.

Which body(s) owns the facilities?

The U.S. Government, specifically the DOE and DOD owns defense related nuclear facilities and sites. The sites themselves are generally operated by commercial contractors. This arrangement – Government Owned Contractor Operated – is frequently referred to by the acronym GOCO.

As stated earlier in this document, the nuclear facilities regulated by the NRC are commercial plants. These plants are owned by private sector companies. NRC oversees the decommissioning of these reactors and facilities, but the owners are responsible for choosing the decommissioning strategy and conducting the work

Describe the responsibilities for funding of the decommissioning plan and disposal plan (including for oversight of funding arrangements and whether or not the funds are managed by the licensee organisation). Are they one and the same body?

Funding for DOE and DOD facilities is provided by the United States government on an annual basis, provided through the government budget process. Normally, if a decommissioning project is a specific line item in the budget, funding is ensured for completion of the plan. Funding for DOE projects is dependent on congressional imposed budgetary conditions.

Conversely, private companies that have commercial nuclear facilities licensed under the NRC are responsible for funding their decommissioning project. In addition, as a condition for receiving an operating license, private firms must demonstrate that they have adequate funding for implementing and completing the decommissioning process. Five years before the projected end of a facility's operation, licensees are required to prepare a preliminary decommissioning cost estimate. Licensees must demonstrate how the funds will be accumulated and managed to ensure that the decommissioning project does not experience funding shortfalls.