



**NDA Estate  
SME Steering  
Groups**

**November 2014**



# **Guide to SME Collaboration**

**NDA Estate SME Steering Group  
— North**

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# Foreword

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For Small and Medium-sized Enterprises (SMEs), collaboration is a key tool. It offers a variety of benefits: from skills transfer and learning to flexibility, innovation and value. It also provides opportunities to access work not normally available to individual companies, potentially increasing market share and supporting a healthy supply chain.

There is no doubt that collaboration has brought benefits to the Nuclear Decommissioning Authority (NDA) estate that have resulted in efficiencies and innovation in dealing with its civil nuclear liabilities. The NDA with its Site Licence Companies (SLCs), supported by members of the Tier 2 supply chain community, also recognise the value that collaboration with and between SMEs can bring, and have been working closely with regional NDA SME Steering Groups to understand and reduce the barriers and challenges facing SMEs working within across the estate.

The NDA SME Steering Group – North has taken on the challenge of nurturing both SMEs and the collaborative process by producing this SME Collaboration Guide, which I am very pleased to introduce and support. The guide has been produced using the experience and knowledge of SMEs and larger companies who are successfully collaborating within the NDA estate and beyond.

As with the group's previous guide - Better Practice Innovation for SMEs - this guide aims to help SMEs understand the core issues that need to be considered. It is designed to encourage many more successful collaborations in future.

## **Baroness Verma**

Parliamentary Under Secretary of State for the Department of Energy and Climate Change

# Introduction

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## What is collaborative working, and what does it mean in the nuclear decommissioning industry?

The terms ‘collaborative working’ and ‘collaboration’ are commonly used today. Less often defined is their meaning, and the different contexts in which they are used. Yet both terms mean very different things to different people, and the situations in which they are used create even more confusion.

We are not helped by the fact that the terms often carried a negative implication in the past, quite different from their status today. During the Second World War, ‘collaborator’ was attached to people who were known or suspected to be ‘working with the enemy’.

Throughout the 1960’s and 1970’s the term had connotations of collusion and corruption in business, appearing alongside ‘oligopoly’ and ‘price fixing’.

Although today collaboration is almost universally recognised as a positive term, both culturally and economically, it is still important to clarify what we mean. Perhaps the best way to do that in this guide is to focus on how collaboration is applied in our industry.

In nuclear decommissioning, we tend to use collaborative working as a means of adding value to any task or project. Collaboration is intrinsically linked to many familiar models, such as lean. To narrow it down even more, this is the definition we will use for collaboration throughout this guide: ‘Working together, in a seamless team, to common objectives that deliver benefit for all through mutually beneficial alignment’.

We believe strongly in the benefits of collaborative working, and this guide aims to show how SMEs in nuclear decommissioning can use collaborative working to bring to projects increased value for money, better quality, reduced waste, and more efficiency. By working with others, it is also possible to create greater business opportunities and operate at higher levels in the supply chain.

By working together, SMEs can increase their ‘offer’ and capabilities, and create more opportunities while removing some of the barriers that exist in nuclear decommissioning.

There is no doubt that the old adage is just as true in our industry today as it ever was: two heads are indeed better than one. In fact, looking to the future, perhaps we should be replacing that assumption about ‘two heads’ with ‘multiple heads’

**Mark Beirne**

Chair NDA Estate SME Steering Group North

# Why collaborate?

**This section looks at both the benefits and pitfalls that businesses must consider when considering collaborative working.**

With the world of business growing and developing rapidly, and with the increased demands on companies to deliver complex packages of work, it is becoming more and more difficult for SMEs to meet all the challenges and conditions outlined by the customer. To strengthen your position in the marketplace, forming a collaborative partnership will allow you to deliver projects that you may otherwise not be able to deliver on your own, or be precluded from at the prequalification stage of tendering.

There is always a reason to collaborate. The following list provides some areas where a collaborative partnership may be worth considering as an option:

## Contract requirement

The type and nature of the contract you wish to enter into states that collaboration for the work is required or preferred. This may be required to reduce risk to the client by sharing responsibility and risk within the supply chain. Such collaboration could mean working directly with the client differently from the traditional supplier / client relationship, or it could mean a number of suppliers grouping together to create a team to deliver a larger scope of work that no individual supplier can deliver alone.

A Collaborative Working System (CWS) is an organisational unit that emerges when collaboration takes place, whether formally or informally, intentionally or unintentionally.



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CWS are those in which conscious efforts have been made to create strategies, policies, and structures in order to institutionalise values, behaviours and practices that promote cooperation among different parties in an organisation to achieve goals.

### Financial rewards

A group of companies tendering for a project (successfully) could mean acquisition of work for your business that is potentially outside your normal scope. Or collaborating with another partner may simply increase the probability of attaining that project work. Since significant time is often spent preparing for tenders, anything that can increase the probability of successful contract award has to be considered worthwhile in financial terms.

### Greater than the sum of the parts

Individual companies involved in a collaboration each have their own specialist areas of expertise. Combining different skills will provide a greater packaged response to the customer requirements. This could simply enable a group, consortium, or collaborative party to bolster its Suitably Qualified and Experienced Person (SQEP) resources for the project being tendered. It could also allow a specialist skill to be brought in just for that specific work area of the project.

### Risks are too high independently

As an SME you may know that you have the skills and capabilities to complete a contract, but the contract may hold too many risks for your size of operations. Collaborative working allows risks to be appropriately shared within the project.

### Shared responsibility

Within a collaborative partnership, the responsibilities can also be shared out, utilising the best resources available while spreading the load evenly.

### Combine expertise and share skills

Each member of the collaboration will have different skill sets and capabilities. These various levels of knowledge and experience can be combined.

### Gain credibility

It is important that for any collaborative working to take place, all parties must have a shared interest, goal, and objective for the project. Similarly there has to be a level of trust between the parties involved. The process will not be successful without this.

Ability to collaborate with other parties to deliver a successful project will give all parties increased credibility for successful delivery. This will lead to greater trust of, and within, the industry. Other companies will be keen to experience the same level of successful delivery, and will be more likely to engage in your collaborative projects in future.

There is no better marketing device than a successful project, delivered through collaboration.

### Solve a problem

Collaborative problem solving groups are designed to work together with a focus on solving real world problems. Members of such groups share a common concern, a similar passion, and a commitment to their work. Members are willing to ask questions and try to understand common issues. They share expertise, experiences, tools, and methods.

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The groups, or group members, may be fluid based on need, or may only be involved temporarily to finish an assigned task. They might also be more permanent in nature, depending on the needs of the projects. All members of the group must have some input into the decision making process, and a role in delivery. Group members are mutually responsible for the thinking, teaching, monitoring and delivery by all other members of the group.

Collaborative groups require joint intellectual efforts between members, and involve social interactions to solve problems together. The knowledge shared during these interactions is acquired during communication, negotiation, and production. Members actively seek information from others by asking questions. The capacity to use questions to acquire new information increases understanding and the ability to solve problems.

By using collaboration and communication, members often learn from one another and construct meaningful knowledge that leads to better outcomes than through individual work. This increases the SQEP capability of all parties involved.

### Increase efficiency

Collaboration does not simply mean working next to the other party. Geographic distances can occur between parties, however aligned they are with understanding and goals. Efficiency can be achieved in these 'remote' collaborations through the use of modern communication technologies such as web conferences, video conferences and other e-conference facilities.

Typical benefits from these technologies include savings on travel time in reviewing documents, drawings, and project progress etc. This allows more frequent updates between design office, production facility and end client

and removes the need for all three elements to be co-located. Another major benefit is the reduced costs and energy expended during travel to meetings, and the improved environmental credentials as a result.

Greater efficiency can also be achieved by enabling access to specific experience or skills, in order to get the best result. It allows each task to be performed by the person with the most appropriate SQEP qualification, and the SQEP pool can therefore be increased while delivering improved performance.

### Open up funding opportunities

A collaborative group is likely to have access to different pools of funding, particularly if located in different funding zones: county boroughs for example. Although it is not possible for two zones to provide funding for the same work, there may be restrictions placed on a single entity on secondary funding if they have already had an allocation for something else. Collaboration with a party outside that funding zone can give access to more pots of funding.

### Pooling of financial resources

A collaborative group is likely to have access to greater financial facilities, and financial resources can therefore be pooled for the good of the project. Similarly, since most companies get different discount structures from their respective material and equipment suppliers, the group will have access to the best quality, lowest price, and quickest delivery from their respective supply chain. This should lead to quicker project delivery and improved payment terms for both the client and the supply chain.

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## Leads to more opportunities

A successful collaborative group is likely to be given more opportunity to tender, and therefore the potential for greater success in future project delivery. A high level of collaborative capacity will enable more effective work both at the local and daily levels, and at the global and long-term levels.

## When is it appropriate?

The checklist at the back of the document outlines some (not all) questions that need consideration when looking into the possibility of collaborative working.

A comprehensive Collaborative Capability Self-assessment form can be found on: [www.capabilityassessments.com](http://www.capabilityassessments.com). This is part of the BS 11000 suite of documents from the Institute for Collaborative Working. Full details can be found in the References section at the back of this guide.

Also see Section 5 on 'Barriers and challenges'.



# Models and partners

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## 1. Who with

There are a number of models in which collaborative working can take place. The range of organisations you may want to work with is also quite diverse. In considering a suitable partner it is worth considering the following:

1. Past experience
2. Behaviours and culture
3. Location
4. Skill sets
5. Size of company

It is not uncommon for formal contractual arrangements to develop into a more meaningful relationship, particularly where an SME is acting as subcontractor to a main contractor. This approach has the benefit of developing an understanding of each other's capability and behaviour, strengths and weaknesses, which create a build-up of trust over time.

Trust is a key element of any collaborative arrangement, so an ideal collaborative partner is one with whom you have worked before, delivering a variety of projects. In this situation, it is likely that the skills sets of each organisation are different, enabling the work share within a collaborative arrangement to be easily determined.

Another reason for collaborating is to provide a route to market that is not always open to all parties, so it is not unusual for similarly disciplined SMEs to work together to provide more strength in depth to their offering than going it alone. The challenges in this arrangement are related to work share if a number of organisations offer similar capabilities.

It is worth considering geographical locations when seeking a partner. While cloud based technologies and video conferencing make it much easier these days to work remotely (see Section 2), there are important benefits in developing the right behaviours through

face-to-face dialogue. Local and country cultural differences can also make it difficult to develop a common sense of purpose and trust, although there are good examples of successful multi country collaboration.

Competitors don't make natural partners, but collaborating with competitors should never be discounted as there are many examples of good collaboration on particular projects. These arrangements may need more time to develop, as suspicion is inevitable, effort is needed to build up trust, and strong and clear leadership is required from all parties. Inevitably there will be areas where one company is more capable than another, and by adopting the 'best athlete' approach the whole team can develop respect and trust.

In general, collaboration works better with companies of a similar size and culture, but it is possible to make it work with a variety of partners providing there is a common goal and a sense that by working together in this way real value is provided to the customer and individual partners.

The simple answer to who best to collaborate with is to find the same mind-set and culture and values. This can be a supplier, a customer, or a competitor – even from a different market or country.

## 2. Finding suitable partners and starting up

Finding a suitable partner is much like finding a suitable customer. You have to make the supply chain in which you operate aware of your capability and your way of doing business. There are likely to be a number of forums and working groups which are attended by the supply chain, including local business clusters, and attendance at these is an excellent way of developing relationships. It is essential that collaborative behaviour is demonstrated to encourage the development of dialogue.

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### 3. Teaming relationships – commercial options

When two or more parties decide to formally work together to pursue a common goal, the partnership could be a strategic alliance or a joint venture. There are similarities between each of these arrangements, including the fact that each situation requires two or more parties to join together.

Both a strategic alliance and a joint venture are designed to last for a designated period of time. In an alliance, the agreement is typically between organisations.

There are benefits and risks associated with both strategic alliance and joint venture situations. Contracts are designed ahead of time to outline how profits, sales, risks and liabilities will be shared among all of the parties involved in the arrangement. There are various types of commercial vehicle that can be considered as detailed below:

1. Incorporated Joint Venture (JV)
2. Unincorporated integrated Joint Venture (JV)
3. Unincorporated non-integrated Joint Venture (JV)
4. Strategic alliance / consortium.

#### Key drivers:-

- Client desire for an integrated team
- Governance
- Liability
- Profit (dilution of profit margin).

#### Key issues to consider when designing a commercial vehicle are:-

- (i) Scope and scope split of the services relevant to each party
- (ii) Which model provides the client and the parties with a win-win
- (iii) How do the parties appear in front of the client - as one entity or as separate units

- (iv) Governance process and administration requirements of each party
- (v) How risk and liability will be apportioned
- (vi) How profits will be handled
- (vii) Extent to which each party should be responsible for its own activity
- (viii) Extent of skill set and capability overlaps
- (ix) Timing and duration of involvement of majority of the parties' respective scope activities.

#### Incorporated or unincorporated

Any of the JV options can be in an incorporated or unincorporated form. Generally, an incorporated JV is only considered for projects that are very large, or so risky that they require the establishment of a specifically established vehicle (company) to perform the works.

For defined projects, unincorporated JVs have all the advantages of a JV structure, but do not have the separation rigour of incorporation. Participants tend to feel easier to second staff to the JV. Generally this is the form a JV in the UK Nuclear sector takes.

There are various considerations to be made for each option:

#### Option 1 – incorporated Joint Venture

An incorporated JV is the formation of an organisation or company, with separate legal entity which is registered at Companies House (incorporated), in which each party holds shares. The shares may be split equally or in accordance with a pre-agreed split. Significant time and cost is incurred in setting up an incorporated JV, and therefore this will only be suitable for the largest projects. This company works as an independent company with equity invested by its owners. It can be a limited liability company. Its formation will always need main board approval, and may need a

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shareholders meeting for approval as it will probably affect the value of the main company.

## Benefits

- Parent companies sheltered from liabilities (PCG probably required)
- Parent company receives dividend against little or no cost revenue (high margin).

## Weaknesses

- Requires a corporate structure, and must comply with corporate rules including filing accounts
- Cost to set up and ongoing management cost
- Shared risk and liabilities
- Insurances can be expensive.

## Option 2 – unincorporated integrated JV

An integrated JV is a business agreement in which the parties deliver as one entity work packages or a project, and share resources as required with no distinction in responsibility. Resources are typically assigned to the project on a best-athlete basis, although the parties may also wish to ensure that a pre-agreed split of resources deployed on the project is maintained (clearly this should not be at the expense of the project's success).

This model is appropriate where the skills, capabilities and project scopes of the partners are well aligned. Profits, risks and liabilities are shared in accordance with a pre-agreed split. Liability to the client is generally on a joint and several basis, and the JV agreement will normally include cross indemnities to ensure that no party bears any liability greater than its agreed percentage share. They exercise control over the enterprise and consequently share revenues, expenses and assets.

## Benefits

- Ease of setting up and closing down operations, and no incorporation of a legal entity
- No need to create a corporate structure that complies with corporation laws in the jurisdiction in which the unincorporated joint venture is taking place
- Branding and workforce buy in
- One stop shop
- Established set common values and beliefs
- Long term
- Equal split of profits and liabilities, therefore focus on quality delivery to promote positive behaviours
- Client has single point of contact/delivery
- As fee is related to equity value, a main driver in this relationship can be to have the lowest level of involvement possible thus maximising the fee against cost; however this does not support the best athlete principle.

## Weaknesses

- Shared risk and liabilities
- Insurances can be expensive
- Potential for complex cost recovery model (e.g. blended rates, blended fee etc).

## Option 3 – unincorporated, non-integrated JV

A non-integrated joint venture is where the JV partners deliver discrete packages of work with joint and several liability to the client, but have rights of recovery against each other (e.g. each party will bear liability for its own actions and risks, and will typically indemnify the others against such liability). Similarly, each party is entitled to the profit it earns, and this is not affected by any under-performance of its partners. Typically a single project director and commercial manager would be nominated to

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act as client interface on behalf of all parties, and the parties will need to work together collaboratively to achieve common goals for the benefit of the JV as a whole.

The main difference with this arrangement is that the scope responsibility is delineated, and the cost and liability related to the scope. This model is most appropriate where the skill sets, capabilities and work scopes can be clearly distinguished between the parties.

## Benefits

- Ease of setting up and closing down operations: no incorporation of a legal entity
- No need to create a corporate structure that complies with corporate laws in the jurisdiction in which the unincorporated joint venture is taking place
- Members of the venture will normally create some sort of steering committee that helps to move the venture along; the exact organization of that committee or group is left up to the members, and can be defined in the joint venture agreement itself
- Low cost
- Separate risks and liabilities
- No dilution of profit (no fee on fee arrangement)
- Allows annual cost effective insurances to be used; no cross over expensive insurances
- Easier to define cost model as blended rates not required
- More cost effective for client (blended rates in an integrated JV may require an element of contingency)
- Work carried out by the right party at all times
- Client has single point of contact and delivery

- Will be driven by a very specific 'definition of works' defining who does what, as that is where the risk for each part is held
- All JV members can define separate fee levels for their scopes.

## Weaknesses

- May not be in the client's best interest.
- Requires clear scope definition
- Multiple insurers, and hence claim handlers
- Aggregation of insurance excesses
- Risk that parties may pursue individual interests for individual gain.

## Option 4 – strategic alliance / consortium

An alliance is an agreement between two or more parties, made in order to advance common goals and to secure common interests. Generally a lead entity holds the 'Head Agreement' and each party holds the same head contract on identical terms: the client tends to view this as one framework.

The consortium may be set up in a number of ways such as:

- Prime/sub (or closed alliance): the parties agree that there will be a single party which receives and holds the prime contract with the client; this party will sub-let the contracts to the responsible party on a pass through, flow down basis for all risk.
- Separate contracts (or open alliance): the client agrees that they will jointly manage the activities of the alliance by placing two (or more) contracts with the main parties; a management agreement will be established to administer which contract goes with which lead party; the lead party normally subcontracts to others in the arrangement for support.

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## Benefits

- No incorporation of a legal entity
- No need to create a corporate structure that complies with corporate laws in the jurisdiction in which the unincorporated joint venture is taking place
- Low cost
- Direct access to supply chain (best athlete)
- Separate risks and liabilities held.

## Weaknesses

- Multiple contracts for client to administer
- Dilution of profit (no fee on fee arrangement) when working at the top level
- Risk held by the Prime can be multiplied by the Prime/sub-contractor relationship
- Insurances are per entity, therefore aggregation of excesses
- Multiple insurers and claim handlers if a claim arises: would require the client to agree to the structure and participate in its administration
- If the contract is being let by the client to a number of companies (to run mini competitions) the client may be very reluctant to be seen as involved with the management of an open alliance.

# Essential ingredients

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## Essential ingredients: what is needed for successful collaborative working?

There is no magic formula that can guarantee a successful collaboration, but there are a number of essential ingredients that will greatly improve your chances of achieving and maintaining one. This section looks at some of the process and behavioural requirements that will support your collaborative venture.

### Knowing your Unique Selling Point (USP)

Collaborative working allows you to participate in a commercial environment that you would not necessarily be able to operate in on your own. The collaborative working arrangement should be mindful of the specific benefits each participant brings, and the structure and division of labour and responsibility should maximise their potential to be beneficial.

Each participating organisation should therefore be open and honest about their capability, resource and any specific USP that they can offer. Setting this out formally in the early stages will allow all parties to ensure their efforts and share of the risk balance the potential reward.

Write out what your USP is as a collaborative venture and agree with all parties. You may use it outside or you may not. It is also useful to consider what each of the partner organisation's USPs are. A group of SMEs, for example, could use their responsiveness and access to key individuals, whilst having the size to deliver significant projects. Knowing this information at the start will help you to focus on setting up the right team and conveying your message to your clients.

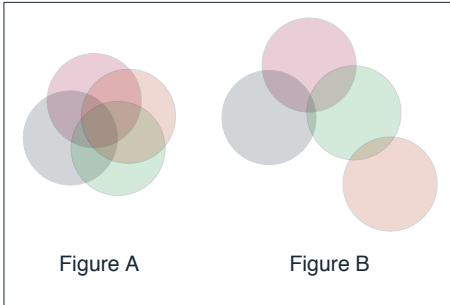
### Arrangements

As discussed above (Teaming Relationships in Section 3), it is important to establish formally the specific arrangements of the collaboration at the earliest possible opportunity. Risks should be shared fairly, in line with the potential benefits, and objectives should be set that are jointly agreed between all parties involved.

It is much easier to determine all aspects of a collaborative venture when the scope of your offering is clearly defined. This is most likely to be defined by a response to a specific contracting opportunity. Alternatively, where an organisation has intelligence that a specific type of project is planned, a collaborative approach could be developed with a view to future support.

When identifying suitable candidate organisations to work with, you may want to look for similar sized organisations in the first instance: you are more likely to agree on some of the softer issues discussed later, and the risk / reward balance is likely to be more evenly distributed. As stated previously, there is no one solution here, so working with a much larger (or smaller) organisation may be acceptable. There is always the tendency for the larger organisation to default to taking a leading role, and this may not be what you want in a collaborative venture.

Thinking about the scope of supply within your teaming venture, you may want to avoid too much overlap (Figure A) as this can cause difficulties in determining who does what. A little overlap allows the team to understand what each member is bringing, while making it obvious who will lead in which area and ensuring maximum coverage with a smaller team (Figure B).



By avoiding large overlaps you expand the area you cover, and it makes the ‘who does what’ decision process much easier. Describe within your systems and procedures a clear understanding of who would lead in each area of the scope of supply.

## Culture

The culture of the collaborative venture will be determined by the values and practices shared by the members. A shared culture is important because it can significantly impact the strength and effectiveness of your collaborative venture. It is worth considering at selection stage if candidate companies have a similar culture to your own. Company culture is not easy to change, so getting partners that fit from the start makes things a lot easier during the working relationship.

Before you can agree on the collaborative team culture, you have to decide what you want the culture to look like when the project is operating in the future. Look at what kind of a culture will work best for your team in its desired future state. Review your mission, vision and values, and make sure the culture you are designing supports them.

One set of cultural behaviours that is particularly important is embracing openness, honesty and transparency within the scope of the collaborative working agreement. It is important

to recognise that you may be working with one or more companies that, in other circumstances, may be competitors. As such, it is unrealistic to suggest that you would be open about everything within your business. In the context of the collaboration however, you must share relevant information and work with integrity in the best interests of the joint effort. Where you feel you can’t share specific information, explain why this is so to the other members.

## Common leadership and values

The leadership of the collaborative venture will be instrumental in how effective it is. Choosing the right people to perform the leadership tasks at the outset is therefore important, and it may be necessary to allow these to be fluid as time progresses, to best serve the current demands, opportunities and delivery requirements. Leadership roles should normally be filled by the best person for the task, irrespective of their parent organisation. A team built this way will engender trust and cooperation.

Just as for the venture as a whole, it is best to avoid excessive overlap of capabilities. Design the team to fulfil the function required, and try to avoid structures that are dominated by one organisation. Ensure that leadership team membership is equitable, representative, and most importantly, primarily serves the needs of the collaborative venture.

# Barriers and challenges

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**There are a number of barriers and challenges to be met – some common to all sizes of organisation, and others more likely for SMEs:**

## Resource and planning

For collaborative working to be effective it should be properly resourced, planned and thought out. Resources must be allocated according to skills, and abilities to use those resources most efficiently, with a sense of fairness and proportionality. For many organisations, especially SMEs who typically operate on limited means, allocating and finding resources for collaborative working can be difficult, particularly where the gains may not be immediate and obvious.

## Culture and personality

Key to successful collaborative working is having the right cultures and behaviours, and creating a framework where it will flourish. Therefore it is essential that individuals and organisations involved have an understanding of what drives collaborative behaviours. Integrity and honesty underpin collaborative working.

## Trust and transparency

Without trust and transparency, collaborative working will ultimately fail. Working towards common goals and being interdependent for success makes both essential. Trust and transparency can be slow to build, and SMEs are sometimes reluctant to share information through fear of losing their commercial advantage through exposure of their knowledge, especially when working with competitors.

## Risk

As with any model or process there is always a level of risk, and collaborative working has risks to be identified and managed correctly. One of the biggest risks is not effectively identifying costs and having the mechanisms to control them. Perceived lack of control and trust will also magnify risk and create a major barrier.

## Lack of (or perceived lack of) control

It is not unusual for many SMEs to have centralised control, with a handful of people holding most if not all of the levers (usually the owners, often with tried and trusted methods and in some cases family ties). It can sometimes feel alien to 'let go' and not have the 'final say' on major decisions.

## Conflict of interests

Conflicts of interests can arise when goals, responsibilities and functions are not clearly defined, or are misinterpreted or misunderstood. Conflicts of interests can be internal and external. They sometimes occur internally when two or more collaborating parties are not clear about who does what, and end up competing with each other. An external example is where a member has conflicting objectives between the collaborative working group and their own organisation.

## Self interest

Self-interest is always a danger for individuals and small companies, especially in times of adversity or scarcity of resource. 'Letting go' of self-interest is also not easy.



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## Lack of definition of work share, scope of work, and organisational structure

Every person or organisation in the project should have a clear understanding of their roles and responsibilities, and these should be laid out in simple terms. It is also important that each project has the right components to carry out the scope of work effectively. The organisational structure is often flatter than traditional contracting models, with work agreed and shared out according to capabilities, and on a view of who is best placed to carry out the work.

Understanding each other's capabilities and the capabilities of the group is essential. At the heart of collaborative working is provision of value for money, which only becomes possible by organisations sharing services and learning, and bringing continuous improvement through lean delivery.

## Governance

Clear governance and structure that underpins transparent processes and procedures will allow trust and openness to flourish. Agreeing governance can sometimes be difficult for SMEs who operate hierarchical models, and are accustomed to tiered top-down business models, where they feel themselves to be at the bottom of the food chain.

## Commercial, financial and insurance

Each member and stakeholder within the collaborative working team should stand to gain and lose from the outcomes, and therefore be dependent on each other. Therefore clear, fair commercial terms should be in place, as well as a full understanding of financial benefits and risks. Insurance can be a major problem when risk is not apportioned fairly, and one party stands to lose more than another.

## Management systems

Robust management systems that promote transparency are essential. It is also important to have effective management systems that allow costs to be apportioned, controlled and identified effectively.

## Reluctant client

Not all clients want collaborative working models: usually because the potential value for money and other benefits to them are not well understood.

## Appropriate for scope of works

It is important to understand your capabilities, and target appropriate projects for collaboration. Taking on either too small or too large projects can have costly consequences.

## Lack of USP

A barrier to collaborative working is a lack of understanding or identification of who and what you are as an organisation, and what is your USP. If you do not know this, it is hard to expect potential clients to know, and will make it almost impossible for any collaboration to set effective goals and targets. Every successful collaborative working model should have a principle USP associated with the project.

# Case studies

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## These case studies show examples of SME collaboration in the nuclear decommissioning industry.

### 1. Case study: treatment of Higher Active Waste (HAW)

#### Companies in the collaboration

NSG, DBD, Gardiner and Theobald (G&T) and SKM Enviros, with expert advice on waste treatment technologies provided by the Nuclear Graphite Research Group of University of Manchester (UoM) and Studsvik (UK) Ltd.

#### Project name

Strategic Study to Support the Case for a NDA Programme Approach to the Treatment of Higher Active Waste.

#### Duration

Six months

#### Type of collaboration

Alliance

#### Description of project

The aim was to determine whether any benefits could be gained from adopting a more integrated estate-wide approach to the treatment of the UK's Higher Active Wastes (HAW).

Although the current HAW strategy is mature, with the relevant Site Licence Companies (SLCs) managing the retrieval and processing of their own wastes, there may be opportunities to reduce duplication of effort and costs through the adoption of a programme approach to the treatment of HAW - for example by implementing regional or national treatment facilities, rather than by having each site develop and construct their own, and a

coordinated approach to the treatment of low volume and problematic wastes.

#### Why was the collaboration formed?

Unity is a diverse but complementary group of organisations that includes SMEs, universities and international companies. It was formed to provide the experience and breadth of capability to fully meet the NDA project scope which would have been difficult for any of the companies to achieve whilst operating independently. In particular, the NDA required companies to demonstrate:

- **Knowledge:** Key personnel with appropriate understanding of the NDA waste management strategy and its requirements, supported by documents, samples and networks of contacts.
- **Capability:** Key equipment and facilities to deliver the NDA waste management research and the ability to handle and produce security marked information.
- **Capacity:** The in depth resources and capacity to deliver multiple waste management projects to short deadlines.
- **Management:** Project management to work safely to time, cost and quality, whilst engaging with the supply chain in a transparent and collaborative manner.

The combination of Unity's collective ability allows the NDA access to in depth knowledge of the issues relating to the management of active wastes across different fields. Each of the companies making up Unity has vast experience of waste management and innovative approaches to the treatment and packaging of such wastes. The combination of this experience and knowledge allows us to provide a full, holistic, solution to the NDA's

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requirements.

We also appreciate that knowledge and application of international best practice on waste management is essential to ensure NDA strategy is justified and underpinned in a wider context. Unity has both knowledge and experience of waste management operations across the world that can inform work carried out under this DRP area.

### What were the challenges and how were they overcome?

#### Key challenges were:

- Understanding the ways in which the UK's complex waste inventory may evolve to 2120.
  - Overcome with information available from the UK Radioactive Waste Inventory (UK RWI), RWM (formally RWMD) DiQuest database, and the published SLC site lifetime plan.
- The evaluation of a wide variety of technically dissimilar waste treatment techniques.
  - Using experts within NSG and Studsvik, a large number of potential techniques, were reviewed, selected and considered further in a credible scenarios workshop. The workshop involved a range of experts and stakeholders spanning the industry.
- Development of a robust economic model for the implementation of different waste stream scenarios (including multi-site deployment) for the whole of the UK nuclear industry
  - By assembling the expertise from within industry, the NDA, SLCs and regulators, it was possible to consider the likely costs associated with each of the preferred waste treatment options. This information was then used to build the economic model.
- Production of a justifiable business case to

inform NDA strategy in this key area

- This was overcome by expanding the outcome of the preferred options workshop. SKM Enviros, who are accomplished business case writers, led this aspect of the project and produced a full business case, which included both a detailed economic model and rigorous market testing, which was presented to the NDA as the optimum way to approach a programme view of the UK HAW inventory.

### What were the benefits?

#### Expanded supply chain relationships

Our approach to framework management has strengthened relationships between the participating organisations and has been evidenced by the continued collaboration beyond the Unity framework. Specific examples of further collaborative working include:

- NSG has supported SKM Enviros in several land remediation projects by providing specific services that were not available directly from SKM Enviros;
- Gardiner and Theobald recently invited NSG to join the Orchid framework;
- NSG has previously supported ARC by providing information on ILW containerisation.

Furthermore, opportunities are being explored by:

- Synergy Health and Loughborough University (irradiation services)
- ESG and NSG opportunities on Environment Agency sampling framework.

The expansion of our supply chain relationships has not only strengthened collaborations further, but has allowed smaller companies to come together to access large government projects.

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## **Exploring many different aspects of the project scope**

By combining the specialist skills, expertise and knowledge of our organisations, we were able to explore the project scope to deliver its objectives. Each company had its own niche capabilities, resources and contacts, which added value to the Unity contribution by extending the resource base in a focused manner. In this case, we used the resources to explore aspects ranging from the HAW inventory and future arisings, credible HAW treatment options, and the economic and financial aspects of identified options.

No single organisation had the expertise or capacity to explore each of these aspects alone. Collaborative working allowed us to produce a comprehensive strategic business case detailing the economic, commercial, financial, and management cases for the implementation of a multi-technology approach for the treatment of HAW.

## **Incentivising participating organisations to achieve a common goal**

Our open and honest communication meant that all Unity members had the opportunity to view the packages of work, so that the assignment of lead and supporting roles was undertaken in a fair manner. This combined with clearly defined tasks and company roles, meant that each organisation was incentivised and motivated to achieve a common goal, thus enabling project objectives to be achieved.

## **Expanding the skills and capabilities of each organisation**

Many participating companies had both leading and supporting roles in more than one task, thus each contributed to a range of tasks, some of which may have been outside the core capabilities of the organisation.

This was demonstrated by SKM Enviros, who

as accomplished business case writers, led the delivery of the task, but were supported by NSG. This gave NSG an opportunity to participate in a task outside of its core scope, thus developing additional skills and experience. SKM Enviros also gained greater experience of writing business cases specifically for the nuclear industry. Thus the adopted approach facilitated the expansion of existing skills and capabilities within each organisation.

At the NDA's supply chain awards in 2013, the Unity alliance was awarded the 'best SME example of a supply chain collaboration'.

## **What changed over time in the collaboration, and why?**

The only changes to note during the collaboration were the strengthening of relationships. SKM Enviros and NSG have worked closely together on many projects, while NSG have pursued additional collaborations with Arc and Gardiner and Theobald beyond the Unity framework.

## **Lessons learned**

The Unity group has developed a framework management approach for delivering projects, which is based on a collaborative relationship between the contract delivery team and the NDA to develop technically underpinned and innovative approaches to satisfy the NDA R&D requirements.

Our best practices in ensuring a successful collaborative relationship include;

### **Clear Programme Definition**

As part of Unity's management approach, all tasks, activities and milestones were clearly defined. In this instance the project scope was split into seven individual tasks, with each task having a number of activities. Each task / activity had a clearly defined set of timescales and milestones, which were required to meet

the overall project objectives. This approach was outlined during a kick-off meeting between the client and participating Unity companies as a way of clarifying the project scope and communicating the way forward.

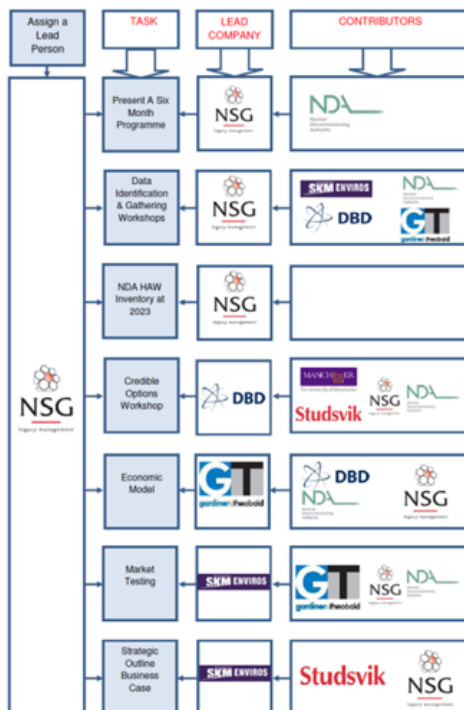
### Fair and Equitable Assignment of Roles and Responsibilities

The Unity group believes in fair, open and honest assignment of roles and responsibilities across participating companies. Each task was assigned a lead company from within the Unity group who was responsible for delivery. Each lead company was selected based on their knowledge and expertise relevant to the assigned task. Other companies from within the Unity group were assigned supporting roles within each task. The supporting companies were responsible for delivering smaller packages of work to support the lead companies in delivering the tasks.

The graphic below shows the working relationship between our companies, as well as NDA inputs identified in the scope.

### Regular Communication

Regular, open and honest communication both within the Unity group of companies and with external stakeholders was encouraged throughout the project. In addition to the initial kick-off meeting, the Unity group maintained contact with each other and with the client in the form of monthly progress reports. This allowed project progress to be assessed and any concerns to be openly discussed and potential problems identified early within the project lifetime. These monthly updates were relayed to the customer, thus providing a constant source of communication.



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## 2. Case study: effluent tank sampling

### Company names in the collaboration

James Fisher Nuclear, React Engineering, Shepley Engineers and WYG, Romar Workwear Ltd, Custom Composites Ltd.

### Project name

Sampling and characterisation of four separation area storage tanks.

### Type of collaboration

The successful project delivery was dependent on close team working and collaboration between clients and suppliers, and was based on the successful CNSL model used to support the Decommissioning Framework Alliance (DFA) for Sellafield Ltd. Under the CNSL model, JFN took the lead position supported by React Engineering, Shepley Engineers and WYG. The CNSL model for supply chain co-operation was supplemented by the input of two specialist SMEs: Romar Workwear Ltd and Custom Composites Ltd.

### Description of project

Radioactive waste in four redundant effluent holding tanks needed to be sampled and characterised, which included visual/camera inspection, laser scanning surveys, in tank sampling and removal of several forms of sample for testing. It was intended that by completing these tasks the quantities of LLW and ILW in each tank could be defined and so support subsequent retrieval and decommissioning of the tanks.

Also minor repairs were needed on one of the tanks. The delivery scope included design, progress through the 'HAZOP/MDDR process', manufacture, test/train off site and complete via on site operations.

Sellafield recognised that this was an extremely difficult project due to the geography of the facility and its physical condition and their invitation to tender expected the supply chain to provide an overhead X-Y crane as the mechanism to deliver tooling into the tanks. JFN was the only tenderer that proposed an alternative solution involving the use of modular long reach tooling which accessed the internal of the tanks by cutting holes in their sides.

JFN designed and manufactured all items that were used, as well as building a full scale test rig allowing all equipment to be tested and then managed the site sampling works against a challenging programme. Work was carried out under C3/C4 conditions with the use of blister bags. The successful project delivery was dependent on close team working and collaboration between clients and suppliers.

An example of the close collaboration required was in the use of carbon fibre as the construction material for the long reach poles. The strength and low weight of carbon fibre composites was critical in delivering the project, but this was a new technology to the nuclear industry.

Deploying carbon fibre first required close interaction with Sellafield waste group to agree the acceptance of the use of carbon fibre and to negotiate an agreed waste route to the LLWR. The long reach tooling had to be jointly designed and developed with Custom Composites, an SME from Rochdale that specialises in the supply of products manufactured from carbon fibre and other composites.

Another critical collaboration was with Romar, an SME from Hensingham that specialises in the supply of PPE and workwear. Romar designed and supplied the blister bags used to ensure containment during operations. The design was perfected with input from all interested parties including the teams who would carry out the operations.

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Teamwork through development stages was supported by co-locating the project team at the JFN rig hall where the tooling was trialed and the operational team were trained and rehearsed prior to working on site. The location and facilities close to the Sellafield site allowed frequent contact with client operational and safety personnel, which supported joint decision making and a shared understanding of the challenges.

The nature of the project meant that the joint operational team needed to work closely and efficiently to ensure dose was kept to a minimum. Working in tight spaces with modular tooling also present conventional hazards, so joint planning and rehearsals helped to ensure the safety of the operations.

### Why was the collaboration formed?

Cumbria Nuclear Solutions Ltd (CNSL) is a consortium whose members offer complementary skills and innovative decommissioning technologies and have the project management skills and experience to deploy these as a team. CNSL model is used to support the Decommissioning Framework Alliance (DFA) for Sellafield Ltd. The CNSL model for supply chain co-operation is supplemented by input from specialist companies, usually SMEs, as and when required.

### What were the challenges and how were they overcome?

Each tank was constructed of mild steel, 12m diameter x 4m high, with a cone roof sited 6 m below ground level and in an open environment.

Access to the facility was very difficult due to their location and proximity to other buildings, roads and active plant.

All four tanks contained miscellaneous radio-active waste and were in a poor state of

repair. Routine surveys and maintenance had not been carried out over the years and the facility was deteriorating due to being open to the elements. The dose and contamination levels from the tanks were high. Working on or from the tank's roof could not be justified due to the unknown tank integrity.

These were overcome by the use of a remote handling solution involving the design, manufacture and deployment of long reach tooling to undertake the characterisation and sampling tasks required.

### What were the benefits?

#### Cost savings

The long reach tooling based approach significantly fell below the budgeted project costs.

#### Acceleration of clients decommissioning programmes

The project was completed in advance of the expected date.

#### Decommissioning Improvement

The innovative long reach tooling inspection methodology is adaptable to other decommissioning tasks

#### Conventional health and safety mitigation and ALARP

Due to the reduced time needed for installation and operations.

The project was completed on time and without a loss time accident.

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### 3. Case study: nuclear submersible ROV

#### Company names in the collaboration

James Fisher Nuclear (JFN) and Sellafield Ltd, with support from the supply chain including Rovtech Systems Ltd, Hydrolec, VideoRay, CMS Ltd, amongst others.

#### Project name

Submersible Remotely Operated Vehicles (ROV) supporting decommissioning and operations in the First Generation Magnox Storage Pond (FGMSP) - various projects.

#### Type of collaboration

A team collaboration between JFN and Sellafield with on-going support and close interaction with other organisations supplying products and services.

JFN has a multi-discipline and co-located ROV team with many years' experience working in the both nuclear and non-nuclear industries, who together bring an innovative approach to problem solving. Close cooperation between the JFN and Sellafield teams has established trust and a better sharing of knowledge and understanding; there is a common focus on progressing decommissioning with ROVs and there is a climate where innovation and creativity are supported to achieve the objectives.

#### Description of project

The aim of the project is to support the safe, cost effective and timely decommissioning of the First Generation Magnox storage Pond (FGMSP) at Sellafield. Innovation was required to address the shortfalls in the existing technologies deployed and to find new solutions to decommissioning not currently within the Sellafield strategy.

Working closely with Sellafield, JFN has taken commercially available ROVs used in the off-shore industry and through innovation in design, tooling and deployment of these standard systems, been able to provide safe and efficient solutions to many of the characterisation and decommissioning challenges presented by the FGMSP. These could not be solved or cost effectively addressed using the traditional remote handling technologies deployed in the ponds. JFN has also demonstrated innovation in the commercial and managements aspects of the ROV projects.

These standard ROVs are re-engineered, certified and extensively tested, so clients can be confident in their performance and reliability in nuclear ponds. They also require specific cameras, sensors and tooling to meet nuclear project requirements.

JFN supplies the tooling for the ROVs and the associated engineering for integrating the tool into the ROV; the designs are modular, so tools can be interchanged. JFN also support PUWER and HAZOP assessments by both desk assessment and demonstration in JFN's customer built dive test tanks, which is also an innovative approach.

Successful ROV projects include:

- The ROVs have enabled Sellafield to access, video and map the contents of the 1200 storage skips in the pond. This has provided valuable data about the contents, position and condition of the skips. JFN fitted a mini ROV with a special boom camera and lighting to inspect the underside of the skips.
- In order to safely retrieve fuel from the pond, it must first be sorted and consolidated. An ROV tool with a hydraulically driven manipulator arm was designed and built by JFN and after extensive trials and training in the JFN test tank, deployed to pick up loose fuel elements in the pond and place these in a



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skip. Several tonnes of fuel rods have been moved using ROV technology including the recovery, sort, segregate and consolidate fuel between containers and from the floor to containers.

- Sampling tools and tools for recovery, retrieval, pumping sludge, shearing and cutting operations have also been developed and deployed. JFN are continually developing and evolving tooling to support operations; e.g. electric manipulators have been developed as an improved alternative to the traditional hydraulic ones, which remove the risk of contaminating the ponds with hydraulic fluids and reduce equipment lifetime maintenance and operational costs.

Further developments continue to push the decommissioning of the FGMSP forward including: pond wall assessments; surface preparation tooling for cleaning of flasks and miscellaneous surfaces; sludge retrieval (both cell and bulk sludge retrievals); methodology for skip handler capsule assist operations.

### Why was the collaboration formed?

Submersible Remote Operated Vehicles (ROVs) have been deployed in the FGMSP as a tool for visual inspection since 1999. This programme demonstrated that ROVs were capable of operating in the challenging environment and could gather useful information, but it was insufficient as a basis for a robust decommissioning strategy.

In 2008, the decision was taken to focus resources on the development of ROVs for the characterisation of the FGMSP. James Fisher Nuclear Ltd (JFN), who had been operating ROVs since 1999 was appointed to develop the ROV capability and extend the scope of operations beyond visual surveys.

### What were the challenges and how were they overcome?

The First Generation Magnox Storage Pond combines used nuclear fuel, sludge, intermediate level waste and pond water, each of which needs to be safely removed and processed through separate routes.

The development of a decommissioning strategy has been hampered by a lack of detailed knowledge of the status and location of the pond inventory. These could not be solved or cost effectively addressed using the traditional remote handling technologies deployed in the ponds.

Working closely with Sellafield, JFN has taken commercially available ROVs used in the off-shore industry and through innovation in design, tooling and deployment of these standard systems, been able to provide safe and efficient solutions to many of the characterisation and decommissioning challenges presented by the FGMSP.

### What were the benefits?

The ROV programme offers solutions to characterisation and decommissioning problems not currently available with existing and planned technologies. This innovative use of ROVs in the FGMSP has had a significant positive impact on the FGMSP decommissioning programme.

It is widely recognised that ROVs are now essential as future tooling to manage critical facility risk reduction, due to acceleration of programme delivery.

ROVs have provided benefits in the following key areas:

#### Improved characterisation

- The ROV programme supplies high quality characterisation data faster and in greater quantities than alternative techniques
- The ROVs can access all areas of the ponds which other remote handling methodologies

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cannot; therefore new remote handling technologies would have had to be developed

- This data has been used to underpin the Sellafield decommissioning strategy and give increasing confidence in the costs, schedule and technical feasibility of downstream decommissioning projects.

### **Cost savings**

- The overall cost of the ROV programme is considerably lower than the alternatives
- The ROVs are able to achieve tasks which did not have any available benchmark methodology, removing the cost of developing a technique
- Development costs are minimised by using mature COTS technology from the offshore industry.

### **Programme acceleration**

- Work has been completed ahead of programme
- The modularisation and versatility of the ROV and the associated equipment reduces the cycle time from project commencement to completion
- The team is progressing innovation for tomorrow's projects, today. This process ensures their smooth and timely transfer into operations
- The ROVs are efficient and reduce the time taken to carry out the activities, compared with traditional methods. The ROVs can deploy to the place of work very quickly
- The JFN test tanks support development of concept designs and in the final stages of the project final testing and operator training.

### **Maintenance and Reliability**

- The ROVs are proven to be very reliable
- The capital cost of the ROVs and spare parts is low compared to the alternative technologies. Several systems have been purchased so that there is no downtime in the event of failure.

### **Risk reduction**

- The programme has been successfully built up out of small increments with minimal novelty at each step
- Each new ROV project builds on the knowledge and experience from previous projects. The methodology of develop – test – refine – train and rehearse minimises risks when a new technique is deployed
- The ROVs can be readily and cheaply tested in dive test tanks and operators trained so they have the skills to deliver in an efficient and effective way which reduces dose and risk on plant
- The continuity of personnel has assisted in delivering exemplary health and safety statistics for the project
- ROVs are a tried and tested delivery platform for tooling and the risks associated with introducing bespoke equipment and new technologies are removed.

# References

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**The following references and links to supporting information may be of use to SMEs interested in collaboration and working in the NDA Estate:**

## **Collaboration**

<http://www.instituteforcollaborativeworking.com/>  
<http://www.bs11000.com/>  
[http://www.constructingexcellence.org.uk/news/pdf\\_news\\_articles/CE%20Collaborative%20working%20the%20principles.pdf](http://www.constructingexcellence.org.uk/news/pdf_news_articles/CE%20Collaborative%20working%20the%20principles.pdf)

## **SMEs**

[http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/sme-definition/index\\_en.htm](http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/sme-definition/index_en.htm)  
<http://www.fsb.org.uk/>

## **Glossary of nuclear terms**

[http://www.burges-salmon.com/sectors/energy\\_and\\_utilities/nuclear/publications/burges\\_salmon\\_glossary\\_of\\_nuclear\\_terms\\_july\\_2014.pdf](http://www.burges-salmon.com/sectors/energy_and_utilities/nuclear/publications/burges_salmon_glossary_of_nuclear_terms_july_2014.pdf)

## **NDA**

<http://www.nda.gov.uk/what-we-do/estate/>  
<http://www.nda.gov.uk/contracts-and-competition/>  
<http://www.nda.gov.uk/contracts-and-competition/sme-steering-groups/>  
<http://www.nda.gov.uk/contracts-and-competition/sme-mentoring-scheme/>  
<http://www.nda.gov.uk/publication/supply-chain-charter-for-nuclear-decommissioning-sites/>  
<http://www.nda.gov.uk/suppliers/>  
<http://www.nda.gov.uk/publication/clarification-on-contractual-flowdowns-for-supply-chain/>  
<http://www.nda.gov.uk/publication/egp12-nda-intellectual-property-policy-rev2/>

## **LinkedIn**

<http://www.linkedin.com/groups/NDA-Estate-Supply-Chain-4438445>

## **SLC web pages – view their supplier pages on how to find opportunities**

<http://www.magnoxsites.co.uk/>  
<http://suppliers.sellafieldsites.com/>  
<http://llwrsite.com/>  
<http://www.dounreay.com/>  
<http://www.research-sites.com/>

## **Contract opportunities:**

<http://www.gov.uk/contracts-finder>  
<http://www.nuclearsupplychain.com/>

Question?	Comments / things to consider	Tick when considered
Who would we collaborate with?	See Section 3 for more details	
What sort of collaborative partnership do we want to enter into?	See Section 3 for types of teaming relationships available, description, with possible benefits and weaknesses of each	
Is there a business case?	It may be an idea to create a simple SWOT analysis or use the PESTLE model	
Who are the internal stakeholders that need to be informed / involved?	Early engagement to gain buy-in is essential	
What resources do we need to set it up and then use throughout the programme?	It is key that the right people are identified for the roles, and there is no over protection of individual territories	
What will the business gain from it?	This needs to be identified and will form part of the business case	
When is it appropriate?	Assess the climate and environment that the contract will operate within, and check to ensure it is viable	
What will the timescales be?	These need to be assessed, as you will need to allocate personnel for the duration and be committed to the collaboration	
What will be the clients' view on a collaborative approach?	Will the client see this as a positive spread of risk, or will it add complexity to the running of the contact	
How will we manage risk?	A full risk register needs to be started and shared throughout as transparency will help to resolve the issues raised	
What USP will this type of working agreement bring to the problem?	See Section 4	
Will this make our case stronger / more attractive?	This should form part of the SWOT analysis	
Is it a contract requirement?	This may be termed as "preferred" by the client so worth considering	
What will be the workload and commitment for those identified as supporting the agreement? Will they have enough time to do the job?	Resource planning is key, and the commitment will drive the success	
Who will head up and liaise between the partners?	Personality and relationship building are vital here and may need to be underpinned with a formal agreement	
Do we have the right culture to embark on a collaborative partnership with another company?	See Section 4	

# Acknowledgements

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This guide has been compiled by the NDA SG. This is a group of industry professionals with vast experience, who care about the industry and have a passion for the work of SMEs. The group is drawn from all parts and tiers of the supply chain – mainly SMEs, but also Tier 2 organisations, site license companies, and the NDA.

We would like to acknowledge the help and time given by all the companies who took the time to enter case studies for the Guide.


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