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Agreement Execution Process Study: CRADAs and NF-WFO Agreements and the Speed of Business

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Perspectives, Inc.



February 2011



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Pacific Northwest National Laboratory
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Executive Summary

Background and Purpose

This report summarizes the findings of a study on the execution of Cooperative Research and Development Agreements (CRADAs) and Non-Federal Work for Others (NF-WFO) agreements across the U.S. Department of Energy (DOE) laboratory complex.

Background: One of the missions of DOE laboratories and facilities is the transfer of technology and expertise to industry for the benefit of the U.S. economy. Various agreements, including CRADAs and NF-WFO agreements, are used as vehicles to further this mission. It is generally perceived that the processes used to execute these agreements vary significantly across the DOE complex, which in turn creates inconsistencies and inefficiencies in executing the agreements. There is also a general perception that DOE and its laboratories are difficult and slow to work with. This perception creates frustration for DOE, as well as its contractors that implement the technology transfer mission, and the partners they wish to engage.

In the fall of 2009, the Commercialization and Deployment Office of the Energy Efficiency and Renewable Energy (EERE) within the U.S Department of Energy requested that Pacific Northwest National Laboratory (PNNL) work in collaboration with the DOE Technology Transfer Working Group (TTWG) on a project that could have a positive impact on the “speed of business” within the DOE complex. PNNL worked closely with TTWG and others to develop a statement of work for a study intended to survey and analyze the relevant practices used to establish NF-WFO agreements and CRADAs, and to develop recommendations on “best practices” for managing the agreement execution process. Perspectives, a consulting firm headquartered in Albuquerque, NM, was engaged to develop survey questionnaires for the study and to lead the collection and analysis of the data.

About the Study: This Agreement Execution Process study (also known as the “Speed of Business” study) is intended to gather information on DOE’s processes such that they may be made more efficient, rapid, and consistent across the laboratories. The study captures data related to existing practices at various facilities, with the goals being to characterize existing agreement execution processes, identify best practices, and develop insights on how to make the agreement execution process more efficient, rapid, and consistent.

The specific objectives of the research are to:

1. Characterize the documentation that must be developed to execute agreements at each laboratory / facility and its associated DOE Site Office;
2. Determine the nature and purpose of reviews and the number of individuals involved in reviewing agreements;
3. Develop estimates of cycle times for executing agreements;
4. Characterize the level of flexibility in modifying standard terms and conditions (Ts & Cs);
5. Identify major issues that frequently arise during the execution process and their impacts on cycle times; and
6. Identify “best practices” that streamline the review and approval process.

Research conducted during the summer and early fall of 2010 involved two main phases:

1. Surveys of technology transfer staff in 17 laboratories and representatives from 13 associated Site Offices, and
2. Follow-up, in-depth discussion groups held at eight locations, with representatives from all major laboratories and Site Offices.

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Reported Agreement Execution Cycle Times

- Overall Cycle Times:** Agreement execution cycle times (the time period from the receipt of the Statement of Work or proposal to the point where work can be initiated) are summarized in the table below, using the laboratory as the unit of analysis. Cycle times are higher for CRADAs (averaging 110 calendar days) than for NF-WFO agreements (averaging 81 days). There is wide variability among the laboratories in reported cycle times (see range). Cycle times reported for Site Office approval is roughly the same for both types of agreements.

Table 1: Agreement Execution Cycle Time
(from receipt of Statement of Work / proposal to work initiation)

Type	Mean # of Days	Median # of Days	Range
Laboratory CRADA	110	105	46 to 192 days
Laboratory NF-WFO	81	75	52 to 135 days
Site Office CRADA Approval (reported by Site Office respondents)	12	12.5	3 to 20 days
Site Office NF-WFO Approval (reported by Site Office respondents)	14	12.0	4 to 40 days

- Average Time per Transaction:** Cycle times were also calculated for the average transaction using a method whereby those labs executing more new agreements are weighted more heavily than those executing fewer agreements. Average transaction cycle times for FY09 are roughly:
 - 95 days for CRADAs (15 days less than the mean number of days above)
 - 89 days for NF-WFOs (8 days more than the mean number of days above)
- Cycle Times for Steps in the Transaction Process:** In an effort to obtain comparable cycle times across the DOE complex, several generalized models of the agreement execution process were presented to respondents, who were asked to fit their process into these models and estimate the cycle times for each step. Most respondents were able to do so. For CRADAs, data from both models were combined to present a generalized view of the steps contributing to cycle times (see chart on the next page). Cycle times for steps in the NF-WFO process were more difficult to generalize. However, the chart presents a general pattern for NF-WFO agreements with concurrent Site Office approval. Non-concurrent Site Office approval for NF-WFOs adds roughly 5 to 7 days to the cycle times illustrated in the chart.

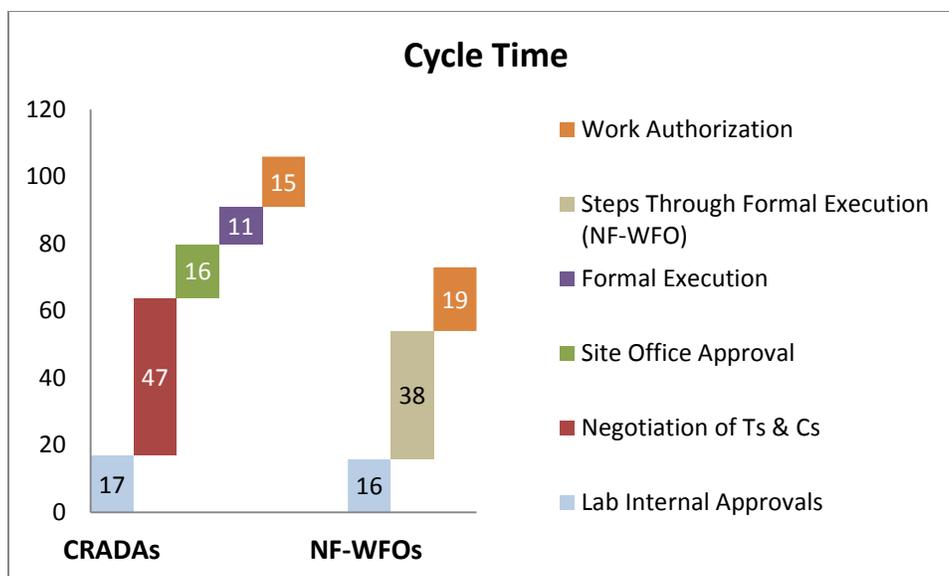


Figure 1: Reported CRADA and NF-WFO Cycle Times by Step.
(Cumulative median days required from receipt of Statement of Work / Proposal through Work Authorization, estimated)

- Site Office Cycle Time:** Although the reported average cycle times for Site Office review and approval are not particularly lengthy, there are many indications from the survey that significant time and effort are devoted by the laboratory to “preparing” the agreement package in order to minimize objections, thus keeping review and approval time to a minimum. In addition, there are many interactions between the laboratories and Site Office that occur prior to the formal approval process. In other words, much time is spent by the laboratories in addressing Site Office requirements and concerns that is not captured in the cycle time estimates.
- Failure to Execute:** Few labs reported agreements failing to execute because of cycle time delays, and the actual number of “failures” reported is quite low. Partner issues with terms and conditions and lengthier cycle times are tightly intertwined, and it is difficult to separate one from the other as a cause of failure. In spite of the low reported instances of failures to execute agreements, the average cycle times shown above were not thought by respondents to be optimal or desirable. Optimal cycle times, according to the respondents, should be in the range of 30 to 60 days, a range believed by some respondents to be more in line with industry expectations.

Agreement Processing Procedures

Data related to the number and nature of agreements processed, agreement formats used and required documentation were collected from survey respondents. Major findings are:

- In FY09, the laboratories participating in this study executed nearly 170 new CRADAs (NREL, SNL, and LANL processed the most of all the labs) and more than 750 new NF-WFO agreements (LBNL, LLNL, ORNL and SNL processed the most). The frequency of newly executed agreements is highly variable across the DOE complex.
- Although the sources of funding for CRADAs were highly variable from lab to lab, 10 of 15 laboratories reported that approximately 50% or more of new CRADAs executed in

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FY09 were partially or totally funded by the CRADA partner. Four laboratories reported that 100% of their FY09 CRADAs received at least partial funding from the partner.

- The average percentage of FY09 new agreements with brand new partners is relatively high for CRADAs (an average of 63% of new agreements per lab) and much lower for NF-WFO agreements (roughly 33% per lab, on average).
- Most labs use the DOE modular CRADA; three report using an approved model customized for their laboratory.
- Alternative agreements which have streamlined features and approval processes are used by a number of laboratories. For CRADAs, these include: Umbrella CRADAs University CRADAs, and other variants. For NF-WFO agreements, a number of streamlined models are used which have a maximum dollar threshold and a limited scope. The use of all of these alternative agreements was reported by respondents to substantially reduce cycle times in nearly all cases.
- Data on documentation developed during the agreement execution process was not reported consistently by respondents, but appears to be voluminous based upon the data that was reported. Such lists, which detail the number of people involved and the documentation required, make it clear why automated workflow processing is desirable. (See also Best Practices and Recommendations below.)
- An attempt was made to correlate cycle times with the number of people involved in the execution process but due to differences in the level of detail in reported process steps, no conclusions could be drawn.

Cycle Time Variability

Almost all laboratory respondents affirm that there are significant variations in the cycle times for the CRADA / NF-WFO agreement execution process at their facility. By contrast, fewer Site Office respondents (half or less) reported significant variations for their own cycle times. Top reasons cited for this variation include:

- **Terms & Conditions (Ts & Cs):** Negotiations with partners related to changes to the standard Ts & Cs are cited as a top reason for variation in the agreement execution process cycle time. These, along with advance payment requirements and issues such as indemnification and Intellectual Property (IP) rights, often prompt extensive legal reviews, which can significantly delay the process.¹
- **Type of Sponsor:** Foreign entity participation is another major source of variation, normally requiring DOE HQ approval (from the Office of International Science and Cooperation, known as P-31). Such reviews can reportedly add “months” to the process.
 - University participation can be another major source of cycle time variability. In this case, increased cycle times frequently appear to be prompted by advance payment provisions that prevent laboratories from beginning work until the university receives funds from a prime contract.

¹ These issues are currently covered in depth in TTWG white papers, including issues related to Intellectual Property (IP) rights, the U.S. competitiveness clause, alternate benefit, conflict of interest, indemnification, etc.

- Other partner-related issues affecting cycle time include: a) delays in returning required information, b) last-minute legal reviews, c) the size of the partner (larger companies generally take more time than smaller companies), and d) the partner's degree of sophistication / familiarity with government procedures.
- **Laboratory and Site Office issues** include: a) availability of the Contracting Officer to review and approve CRADAs/NF-WFOs, b) acceptance of the laboratory's determinations and certifications by the Site Office, and c) special reviews, such as those required for certain types of projects (e.g. human subject work or radiologic work). In some cases, a lack of backups and understaffing contribute to variability. Critical understaffing to handle the typical processing workload of agreements is reported by seven of 16 labs for CRADAs (44%) and six for NF-WFO agreements (38%); of these, four labs report being understaffed for handling both types of agreements.

Flexibility in Modifying Terms & Conditions

Laboratory and Site Office respondents do not perceive that the labs have much flexibility overall in modifying Ts & Cs in agreements. In fact, many laboratory respondents report that they manage the agreement process with inflexibility in mind, in order to explicitly avoid the extended cycle times associated with negotiations over specific Ts & Cs. They believe that partners' perceptions about their flexibility are even less favorable. In addition, perceived flexibility in modifying Ts & Cs for NF-WFO agreements is lower than that for CRADAs, which is perhaps not surprising given the nature of these agreements.

Technical Service Agreements:² In nearly all cases where NF-WFO technical services agreements were used, significant reductions in cycle times were reported. While some of this reduction can be attributed to the nature of the work under these agreements (for example, low probability of IP being developed), the shorter cycle times may also be the result of the contractor being allowed to execute these agreements without formal case-by-case approval by the Site Office. **Expansion of this approach to a broader category of agreements may result in a significant reduction in cycle times.**

Cycle times are inherently lengthened by the number and complexity of issues that must be addressed, such as fairness of opportunity; export control, inclusion of work performed by foreign nationals; environmental, safety and health approvals; conflicts of interest; mission contributions; types of partners; advance payments; and IP rights. INL, for example, has determined that there are some 110 requirements that they must meet for tech transfer. Although it is beyond the scope of this study to determine what requirements could be eliminated, it is important to note that **the number of requirements impose a limit on how much cycle times can ultimately be reduced.**

² Technical services agreements are a broad category of simplified NF-WFO agreements that are used at several laboratories for testing and other types of service work. They generally contain far fewer terms and conditions than standard NF-WFO agreements and do not require Site Office approval on a case-by-case basis.

Best Practices and Recommendations ³

Significant reductions in cycle times were reported by various labs through the use of:

- Automated information systems, particularly those that automate workflow.
- Measurement and analysis systems, such as Lean Six Sigma, to remove redundant or low value steps in the agreement execution process.
- Simplified agreements for selected NF-WFO projects involving testing and other types of service work that are not subject to case-by-case approval by DOE. Use of these agreements was generally found to reduce cycle times by at least 2-4 weeks.

Best practices for streamlining the existing agreement execution process – based on respondent’s current practices and recommendations, and on observations from the data – are summarized below.

- Measure Cycle Times and Analyze the Process. The Site Office and laboratory should develop mutually agreed-upon metrics for acceptable durations, and the cycle times, should then be monitored against those metrics.
- Use well-designed automated workflow systems to reduce cycle times. Manage the complexity of agreement execution, and automate workflows to the extent possible as warranted by the number of agreements processed.
- Conduct process steps in parallel, whenever possible.
- Minimize overlapping and duplicating reviews. Involve functions/individuals in the process only if there is a specific need to do so.
- Develop and maintain a good working relationship with the Site Office. Engage them and internal partners early in the process.
- Maintain and update approved alternatives to standard terms and conditions and reuse these as appropriate, along with DOE-approved alternative model agreements which address issues that consistently arise or meet the needs of specific partner segments.
- Provide education and guidance documents for important players in the review and approval of these agreements.
- Train and empower back-ups for key positions.
- Develop information templates to help those who must provide information. These templates should provide a clear and concise understanding of what kinds of information are required and by when.
- Assign responsibility for CRADA and NF-WFO agreements to an individual(s) in the Site Office with accountability for and a commitment to technology transfer. It is essential that both Site Office and laboratory staff believe in the importance of tech transfer to DOE and that it is a legitimate and important part of their mission. All parties involved in tech transfer need ongoing education, and must work with a common understanding of rules, regulations, and policies.

³ Prior to writing this report, the authors presented preliminary findings from the study at the TTWG meeting held in November 2010. A summary of the recommendations presented at this meeting, separated into incremental and “sea change” improvements, is presented in Chapter II.

In addition to these practices, input from the survey and the focus groups resulted in the following recommendations:

- Empower laboratories to execute agreements under certain conditions without DOE case-by-case approval. Use contractor assurance management systems, similar to those now being established between DOE and M&O contractors. Contractors would still need to conduct the agreed upon process steps and retain the necessary documentation, which DOE could audit as desired.
- Delegate signature authority to the most knowledgeable person at the lowest possible staff level to avoid delays simply based on an individual's availability.
- Address the issue of advanced payment requirements and flowdown difficulties in subcontracts. With regard to reducing flowdown issues on federally-funded projects, it is recommended that the Federal Demonstration Partnership terms be examined and considered for acceptance and adoption across the DOE complex.
- Reexamine the need for DOE-HQ approval of certain agreements; if found to be needed, improve DOE-HQ interactions by making them simpler, more transparent, and more timely. The approving authority should be clearly identified and communicated to the Contractors and Site Offices. To the extent possible, such approvals should be centralized in a DOE function with an interest in encouraging tech transfer, such as the DOE Technology Transfer Coordinator.
- Provide comprehensive and consistent DOE briefing materials for potential Non-federal partners on the nature of CRADA and NF-WFO agreements and working with the government, including discussion of typical requirements and possibly some model agreements.
- Finally, provide enhanced opportunities for networking and sharing among tech transfer staff, such as a) a forum for asking questions, b) a listing of peer contacts at all laboratories, and c) a listing of CRADA / NF-WFO projects and partners at each laboratory. The practice of publishing or linking to standardized agreements at each laboratory should be considered.

I. Introduction

A. Background

One of the missions of U.S. Department of Energy (DOE) laboratories and facilities is the transfer of technology and expertise to industry for the benefit of the U.S. economy. Various agreements, including Cooperative Research and Development Agreements (CRADAs) and Non-Federal Work for Others (NF-WFO) agreements, are used as vehicles to further this mission. One of the goals of developing these agreements was to standardize the process of technology transfer across the DOE complex.

However, it is generally perceived that the process used to execute these agreements varies significantly across the DOE complex in terms of a number of process variables important to their execution, including:

- The number of approvals required before execution,
- The level of documentation needed to obtain approval,
- Issues that are key to obtaining approval of the agreement,
- Flexibility allowed in the various terms and conditions,
- The number of people involved in the review and approval process, and
- The amount of time devoted to document review in the various steps.

These differences, it is believed, lead to differences among the DOE labs and facilities in the time required to execute agreements with non-federal participants (CRADAs) / sponsors (WFO), and the issues that must be successfully addressed in the process. This, in turn, leads to inconsistencies and inefficiencies in executing agreements. There is also a general perception that DOE and its laboratories are difficult and slow to work with. This perception creates frustration for the agency, as well as its contractors that implement the technology transfer mission, and the partners they wish to engage.

The Technology Transfer Working Group (TTWG)⁴ has identified improvements to and the standardization of agreement execution processes as an important aspect of improving technology transfer across the DOE system. Such improvements can also further the objective of the DOE Office of Energy Efficiency and Renewable Energy (EERE) to “conduct its program activities in partnership with the private sector, state and local government, DOE national laboratories, and universities.”

In the fall of 2009, Wendolyn Holland of Commercialization and Deployment, Office of DOE-EERE requested that Pacific Northwest National Laboratory (PNNL) work in collaboration with the DOE TTWG on a project that could have a positive impact on the “speed of business” at DOE labs and facilities entering into agreements to work with industry. PNNL worked closely with TTWG and others across the DOE system to develop a statement of work for a study

⁴ The Technology Transfer Working Group was established in November 2007. A field working group of designated representatives from Laboratories and Facilities and Site Offices, its mission is to address technology transfer activities, issues, and concerns at the working level, under the direction of the Tech Transfer Coordinator / Policy Board. More information on TTWG may be found at http://www.er.doe.gov/Technology_Transfer/policy_board.htm . The DOE’s newly-established website for technology transfer may be found here: <http://technologytransfer.energy.gov/>.

intended to survey and analyze the relevant practices used by DOE labs, facilities, and Site Offices in establishing NF-WFO agreements and CRADAs, and to develop recommendations on “best practices” for managing the agreement execution process.

As part of ongoing efforts to better comprehend and improve DOE’s technology transfer and partnership efforts, this Agreement Execution Process study (also known as the “Speed of Business” study) is intended to gather information on DOE’s processes to help understand how they may be made more efficient, rapid, and consistent across the laboratories. The study is intended to capture data related to existing practices at various facilities, with the goals being to characterize existing agreement execution processes, identify best practices, and develop insights on how to make the agreement execution process more efficient, rapid, and consistent.

The study is funded by the DOE-EERE Commercialization and Deployment Office, managed by PNNL, and fully supported by the TTWG of DOE. A contract was established from PNNL to Perspectives, Inc., a consulting firm headquartered in Albuquerque, NM, to conduct the research, and to compile and analyze the data for summary recommendations.

The research was conducted in two main phases. Phase I (survey research) captured detail on agreement execution processes from the DOE national laboratories and facilities that are most active in tech transfer and their associated Site Offices. Phase II involved in-depth discussions with Phase I study participants to follow up on selected issues identified in the survey research, as well as to capture information on several additional issues of interest.

B. Objectives

The specific objectives of this research are to gather information useful in understanding the following issues:

- Characterize the documentation that must be developed to execute CRADA and NF-WFO agreements at each laboratory / facility and its associated DOE office;
- Determine who reviews and approves CRADA and NF-WFO agreements at each laboratory / facility and applicable DOE office, the nature of their reviews, and the number of individuals involved in reviewing agreements; and characterize the perceived purpose of each of the review steps;
- Develop estimates of the cycle times required for executing agreements;
- Characterize the level of flexibility in modifying the standard terms and conditions (Ts & Cs) of CRADA and NF-WFO agreements;
- Identify any major issues that frequently arise during the CRADA and NF-WFO agreement execution processes, and their impacts on cycle times;
- Identify “best practices” that streamline the review and approval process; and
- Based upon the information compiled in the study, identify “best practices” in agreement approval processes and provide recommendations on how the process of executing CRADA and NF-WFO agreements might be improved.

The end goal is to provide information that will assist in formulating recommendations on how current agreement execution processes can be made more efficient, more rapid, and more consistent. The current study does not address changes in the agreement terms and

conditions, which are already being addressed by DOE and the laboratories in other forums. It also does not address documentation requirements and whether such requirements can potentially be modified.

C. Methodology

Perspectives conferred closely with the PNNL management team (Cheryl Cejka and Bruce Harrer) in determining the specific approach to the study. In consultation with the team, the study was designed to collect data in three main steps, described below.

1. Preliminary (Sampling) Survey

At the beginning of the study, it was determined that the TTWG membership lists were not sufficient to determine all of the appropriate key contacts in each laboratory and Site Office to provide input for the study. Thus, a preliminary questionnaire was sent out to TTWG Voting Members representing 20 laboratories / facilities in May of 2010 to obtain information on contacts within each institution most knowledgeable about CRADA and NF-WFO agreements. In addition, this preliminary survey obtained some brief background information – e.g., key steps in the agreement execution process study, whether information on cycle times was collected, number of agreements executed by each laboratory, and who signs agreements – which was deemed useful to developing the main survey (described below). The preliminary survey was returned by 16 laboratories (80%).

2. Phase I (“Electronic”) Survey

After reviewing the preliminary survey results, Perspectives worked closely with the PNNL team to develop the surveys used for Phase I, using input obtained from the preliminary survey. The initial version of the survey was pre-tested in a focus group with respondents from PNNL. This version was then revised and submitted to contacts at Sandia National Laboratories for review. Based on these two initial reviews, the questionnaire was again revised and submitted to DOE for approval.

The final survey was sent out to the respondents with a cover e-mail from Karina Edmonds (DOE Technology Transfer Coordinator) and Wendolyn Holland (DOE-EERE) encouraging participation. The study was fielded June 24, 2010, and respondents were asked to return the survey no later than July 21, 2010. After several rounds of follow-up, the last completed questionnaire was received by August 30th.

Questionnaire Versions: Ultimately, four versions of the questionnaire were developed: two for laboratory respondents (a CRADA version and a NF-WFO version) and two for Site Office representatives (a CRADA version and a NF-WFO version). The laboratory versions of the questionnaire were more extensive than the Site Office versions. Copies of the questionnaires are provided in Section B of the Appendix.

Survey Participation and Response Rate: The laboratories / facilities and associated Site Offices that participated in the survey are listed below. A fully completed set of questionnaires⁵ was obtained from most of the laboratories. In three cases, only the laboratory returned the questionnaires. A list of study participants is included in Section A of the Appendix.

Table 2: Survey Participation

Laboratories Participating in Survey	Response
Ames Laboratory	All questionnaires returned
Argonne National Laboratory (ANL)	All questionnaires returned
Brookhaven National Laboratory (BNL)	All questionnaires returned
Idaho National Laboratory (INL)	All questionnaires returned
Lawrence Berkeley National Laboratory (LBNL)	All questionnaires returned
Lawrence Livermore National Laboratory (LLNL)	All questionnaires returned
Los Alamos National Laboratory (LANL)	Laboratory questionnaires returned
National Energy Technology Laboratory (NETL)	Lab CRADA questionnaire returned (Other questionnaires do not apply.)
National Renewable Energy Laboratory (NREL)	All questionnaires returned
Oak Ridge National Laboratory (ORNL)	All questionnaires returned
Pacific Northwest National Laboratory (PNNL)	All questionnaires returned
Pantex Plant	NF-WFO questionnaires returned (Other questionnaires do not apply since Pantex has not entered into a CRADA in more than 5 years.)
Princeton Plasma Physics Laboratory (PPPL)	All questionnaires returned
Sandia National Laboratories (SNL)	All questionnaires returned
Savannah River National Laboratory (SRNL)	Laboratory questionnaires returned
Thomas Jefferson Laboratory (TJL)	Laboratory questionnaires returned
Y-12 National Security Complex (Y12)	All questionnaires returned

Overall, an 85% response rate (57 of the 67 possible) was achieved – 94% among laboratories and 75% among Site Offices. These high response rates were due in part to extensive follow-up efforts, including multiple email and telephone follow-up calls to the potential respondents.

Table 3: Completed Questionnaires

Respondent / Version	Number of Completed Questionnaires
Laboratory / CRADA	16
Laboratory / NF-WFO	16
Site Office / CRADA	12
Site Office / NF-WFO	13

⁵ While a “set” is defined as four completed questionnaires for 12 of the laboratories, a completed set for two laboratories is by definition smaller: only the Lab-CRADA version was appropriate for NETL, which is a GOGO lab and does not provide WFO agreements nor does it work with a Site Office. Pantex only received the NF-WFO questionnaire versions, since it has not recently executed CRADAs.

3. Phase II In-Depth Group Discussions

Phase II of the study was designed to review selected questionnaire data and to cover some issues in depth in face-to-face discussion sessions. Survey participants from both the laboratories and Site Offices were invited, along with the associated TTWG voting member (if he or she was not already included). Two-hour discussion groups were convened at eight laboratory locations; each contained representatives from one to three laboratories and Site Offices. In some cases, participants attended by telephone.

Table 4: Focus Group Dates and Locations

Date	Location	Participating Lab(s) / Site Offices
August 31, 2010	Albuquerque, NM	SNL
September 1, 2010	Los Alamos, NM	LANL
September 2, 2010	Golden, CO	NREL
September 8, 2010	Chicago, IL	ANL, Ames (by phone), BNL (by phone)
September 9, 2010	Oak Ridge, TN	ORNL, SRNL, Y-12
September 23, 2010	Livermore, CA	LLNL
September 24, 2010	Berkeley, CA	LBNL
October 13, 2010	Richmond, WA	PNNL, INL (by phone)

The topic guide evolved slightly over the first two groups. Generally speaking, the sessions covered some discussion on the questionnaire responses, as well as general discussions on the following topics:

- Best practices
- Factors that adversely affect cycle time
- Flexibility in negotiating terms and conditions
- Uniformity of process
- Model agreements
- Risk and several other issues, as time permitted

A copy of the topic guide and handouts used to generate discussion are included in Section C of the Appendix. The lists in the best practices and cycle time factor handouts were based on a preliminary scan of the survey data, and meant to generate discussion in the groups.

D. Notes on Data and Analysis

Information and conclusions in this report are based on both Phase I (survey data) and Phase II (focus groups). In certain instances, survey data were changed as a result of clarifications obtained in the discussion groups.

The unit of analysis is the laboratory, with summary data illustrative of nearly the entire DOE laboratory complex.

Limitations of the data: This survey is the first comprehensive study on agreement execution processes across the DOE laboratory complex. The wide variability in laboratory / Site Office practices in the handling of these agreements makes studying this topic particularly complex and challenging. For example, labs varied widely on:

- The size of the tech transfer operations and overall workload (newly-executed agreements and continuations / amendments).
- The extent to which the agreement execution process has been measured and analyzed.
- The organizational structure of the technology transfer function (e.g. centralized versus matrixed).

In addition, there were clear differences in response patterns:

- Participation in this survey was voluntary, and was not an “official reporting requirement.” As such, the range of comprehensiveness and attention to detail provided in the answers varied widely among respondents.
- Labs and Site Offices vary in the extent to which they keep detailed accounts of cycle times, and steps in the process often overlap or are conducted concurrently – leading to ambiguities in the reported data. In addition, respondents may vary in their own understanding of process detail, as illustrated by discussions related to using Lean Six Sigma analysis (see Chapter II) of processes conducted at several laboratories.
- For questions related to cycle times provided for the generic process models (see Chapter VI) and several other questions, some respondents had obvious difficulty thinking in terms of calendar days rather than work days -- even when clearly instructed to do so -- and in many cases do not use the same milestones in their own assessments of cycles. In addition, there are wide variations in the complexity, size, and duration of each agreement processed. Averaging across agreements is thus difficult for these respondents. Furthermore, Perspectives was unable to obtain clarifications on certain inconsistencies due to resource limitations and an inability to reach certain respondents in follow-up efforts conducted during data analysis. The resulting data should be considered indicative of trends and tendencies and are thus more qualitative than quantitative.

Nevertheless, these data provide a clear overall picture of important trends for the topics examined.

Respondent Confidentiality: Respondents were encouraged to be candid. In certain cases, we have not attributed discussion comments or questionnaire responses cited in this report to laboratories or Site Offices in order to respect the confidentiality expected from such a candid exchange.

E. About this Report

Terminology:

- Individuals participating in this study are referred to as respondents.
- The institutions comprising the “laboratory” segment include both laboratories (e.g., SNL) and facilities (e.g., Pantex). For the sake of brevity, we refer to this segment simply as laboratories. Some Site Office respondents may be located with (and / or work for) operations offices; all are referred to as Site Office respondents.
- NF-WFO agreements may be shortened to “NF-WFOs” for clarity.
- NFE (non-federal entities) is a generic term for referring to partners other than the U.S. Government (e.g., commercial, academic, non-profits, and foreign government entities). The formal name for NFEs involved in CRADAs is “participants”; for NF-WFO agreements, they are “sponsors.” Together, these entities may be referred to as “partners” or “customers.”
- Terms and conditions are referred to as “Ts & Cs”; Joint Work Statement is often shortened to “JWS”; Statement of Work is shortened to SOW.

Quoting: Perspectives corrected misspellings and sometimes added minor modifications to responses from the surveys to increase clarity, as necessary. Discussion groups were not recorded, so comments from those sessions are not verbatim but are based on transcription notes. Significant verbatim quotes from open-ended survey questions and comments from discussion groups appear in shaded boxes, and are also included throughout the report narrative. Quotes are labeled as to whether they came from the survey or a focus group.

Organization of this Report: The executive summary and this introduction are followed by these chapters:

Chapter II contains a summary of best practices currently in use by laboratories, as well as recommendations on best practices gleaned from both the discussion groups and the survey responses. In addition, a list of processes or situations that appeared to be unique or unusual at certain laboratories is included here.

Chapter III reviews background data on agreements executed at the laboratories, and contains a discussion on the number of new agreements executed -- and among those, the proportion of those involving brand new participants or sponsors and funds-in CRADAs. In addition, the CRADA models used; requirements for Site Office approval of proposals prior to laboratory response; alternative CRADA and NF-WFO models; staff involved in agreements processing; and documentation developed are reviewed.

Chapter IV examines the issues associated with cycle time variability, including the reported reasons for this variability; the particular steps in the process that are prone to delays; and reports of critical understaffing at laboratories. Reports on agreements that failed to execute in the past five years are described, as well as typical customer complaints reported by the laboratories.

Chapter V covers the issue of perceived flexibility in modifying agreement terms and conditions – from the laboratory perspective as well as the partner perspective (as reported by laboratory tech transfer staff who interact with them), and from the perspective of the Site Office. Finally, estimates of the number of agreements where terms and conditions are accepted verbatim are reported.

Chapter VI reviews reported agreement execution cycle times, including the associations between cycle times and number of agreements and number of agreements accepted verbatim, and a computation of cycle times for the average transaction. Laboratory respondents' estimates of the breakdown of cycle times for individual steps in the execution process are also provided, as well as the cycle times for Site Office approval (as estimated by Site Office respondents). Discussion and survey comments related to DOE HQ approval times are summarized. Finally, the results of focus group discussion on perceived optimal cycle times are presented.

Appendices include the following information:

- Appendix A: Study participation (response rates; list of participants)
- Appendix B: Phase I questionnaires (all four versions included)
- Appendix C: Phase II discussion groups (topic guide and handouts)
- Appendix D: Detailed information and commentary on streamlining and best practices from the survey
- Appendix E: Additional data – the role and purpose of a JWS; agreements processed

For questions about this report, please contact Bruce Harrer or Cheryl Cejka at PNNL (bruce.harrer@pnl.gov, 509-375-6958; Cheryl.Cejka@pnl.gov, 509-375-3700); or Ann Miksovic or Richard Macklin at Perspectives (Ann@perspectivesweb.com, 505-881-0370; Richard@perspectivesweb.com, 505-797-7766).

F. Acknowledgements

Perspectives thanks the voting members of TTWG for their assistance in obtaining the cooperation of their staff for this study, as well as the many respondents who took time out of their busy schedules to complete the surveys and participate in discussion groups. We are also grateful to those individuals at a number of labs who provided facilities and assistance in meeting coordination for the in-depth discussions at SNL, LANL, NREL, ANL, ORNL, LLNL, LBNL, and PNNL; and to the PNNL tech transfer staff, Deborah Payne, and Lada Osokina for assistance in pretesting and reviewing the questionnaires. Special thanks to Robert Hamilton of the Oak Ridge Office for sharing his data on agreements, which was especially helpful in providing a baseline for analysis. Finally, we thank Cheryl Cejka and Bruce Harrer at PNNL and Wendolyn Holland at EERE for giving us the opportunity to assist in the planning and execution of this study.

II. Best Practices in Minimizing Cycle Times

A. Introduction

One of the more valuable outcomes of this research is a distillation of current and recommended best practices related to improving cycle times, and the TTWG members have expressed special interest in having these practices clearly documented for further discussion. Even though the surveys developed for this study logically addressed these questions as the last issue covered, we believe it is important to begin this report with a review of those best practices. The themes expressed here provide useful context for the findings discussed in subsequent chapters of this report.

Survey respondents were asked a series of questions about streamlining and best practices for reducing cycle times, focusing on:

- Electronic information systems;
- Any variations to the agreement process that expedite approvals 1) for particular categories of agreement, or 2) for agreements below a specific dollar threshold;
- Processes for streamlining agreements for 1) participants / sponsors the lab already worked with at the lab / facility OR 2) for streamlining the review and approval of agreement amendments;
- Any other tools, processes, or agreement modifications used by the lab that contribute significantly to streamlining the CRADA agreement execution process; and
- Any other best practices for the agreement execution process not already described.

Laboratories and Site Offices were asked to submit any existing documents summarizing developed best practices; none were provided.

In addition, in the follow-up focus groups, significant time was devoted to discussing best practices for reducing cycle times. The list to the right was shown during group discussions (based on a preliminary scan of findings from the surveys) as a means to prompt discussion on this subject. Respondents believed that this list captured most of the important best practices, adding refinement and depth during the discussions, as well as providing a few additional examples. Moreover, there was much discussion of recommended practices for reducing cycle times during these group sessions.

Possible Best Practices to Reduce Cycle Times

(Your reactions? What's missing? What's most critical?)

1. Automated systems for agreement execution process management
2. Good relationship / communication with Site Office
3. Early (and continuing) engagement of parties involved with TT staff (with PI, Participant / Sponsor, Site Office; periodic internal business meetings including PI, etc.)
4. Conducting process steps in parallel
5. Standardized templates / forms / FIA (funds in agreement) templates [*e.g., who needs what information when*] – in particular?
6. “Reusable” non-standard terms and conditions (non-standard, approved language from past agreements – can they be “reused”?)
7. Electronic vs. paper copies (mentioned frequently by Site Office respondents)
8. Standardized agreement alternatives (customized model for particular labs; customized for particular situations, e.g., umbrella / master CRADAs, industry sector, university model, etc.; WFO agreement alternatives, e.g., Technical Services Agreements, Material and Services Order Forms, Umbrella agreements, repeat sponsor “streamlining”)
9. Other ... ?

Figure 2: Focus Group Handout – Possible Best Practices

This chapter provides a compilation of combined findings from surveys and discussion groups (for NF-WFO and CRADA agreements; from laboratories as well as Site Offices). Key quotes illustrating the main points are included. The chapter is divided into two parts – current best practices identified, and respondent recommendations. (Counts on affirmative responses to streamlining and best practices questions, as well as detailed commentary from the questionnaires from each laboratory, are provided in the Appendix in Section D.)

B. Current Best Practices

Cycle times are important to the continued transfer of technology from the laboratories to non-federal entities. As we understand it, delays affect not only the reputation of DOE labs and the motivation of outside partners to engage in such collaboration (“difficult to work with”) but also the motivation of the Principal Investigators at the laboratories (see respondent comments at right).

PIs gravitate towards a WFO agreement because of a perception that it’s faster to get in place. [Focus Group]

From the PI’s perspective, cycle time starts with the idea of an agreement, which takes 1-2 months to germinate [before even contacting the Tech Transfer office]. [Focus Group]

Observation: As the study progressed, it became clear that a number of respondents had difficulties thinking about cycle times in terms of calendar time (as opposed to work days). However, total calendar time – not “work days” or time “on” or “off the clock” waiting for others to complete associated tasks – is the only time that is visible (and important) to partners and PIs and is how the outside world measures the “speed of business.” A “work-day mindset” may contribute to disconnects between how long laboratory and Site Office personnel perceive the approval processes take (i.e. we get agreements approved in two weeks), and the calendar time measurements used by PIs and partners.

According to the respondents, there are certain intangibles – such as trust between parties and good communication – as well as certain factors that can be operationalized, such as early engagement of all parties and transparency of process actions – that are crucial to optimizing cycle times.

INL has cataloged roughly 110 requirements that they must meet for tech transfer, noting that until these requirements are reduced, “you don’t get at the problem.” The requirements identified in INL’s analysis involve various public laws, DOE Orders, and Contract Clauses. These requirements include those addressing: reporting, ombudsman, partnering, reporting, small business, mission, royalties, copyrights, open sources, conflict of interest, fairness of opportunity, U.S. Preference, IDR, export, publishing and patenting, subcontracts, and specific orders and contract clauses related directly to CRADAs and WFO agreements.

The remainder of this section covers respondents’ reported best practices in place at their laboratories and Site Offices.

Measure and Analyze: The essential and most fundamental best practice is a thorough understanding of the process via measurement and analysis of the process steps and (calendar day) cycle times. (The use of the Lean Six Sigma⁶ process was mentioned by several labs as one technique for doing so.) As one participant from a Site Office involved in such a process, which had already identified low value and duplicated steps, said: “You may *think* you know what everyone else is doing, but you don’t [until you analyze the processes.]” Another laboratory respondent commented that “When you do such an internal analysis, first of all, people *don’t believe* how long it takes.” Several examples of improvements to cycle times based on such analysis are shown at the right.

Metrics: In a comment closely related to the above, one respondent made a good point about metrics. He recommended that the laboratory and the Site Office should have agreed-upon metrics for optimal times for agreement processing steps, including mutually-determined maximum times for approval from the Site Office.

Automated Workflow Information Systems: About half of the labs reported in the survey that they have some kind of automated information system in place for CRADAs, and three-quarters do for WFO agreements, although these systems vary widely in terms of functionality. In addition, several of the labs are in the process of developing and implementing new systems. Some of the systems are developed internally; other laboratories are working with commercial providers. Commercial providers mentioned include Thompson’s IP Manager and a system by Click Commerce.

Respondents mentioned that automated systems introduce both transparency and accountability and provide critical measurements for assessing the process. The functionality of the systems used by the laboratories varies, with the most sophisticated providing alerts to the next step needed or alerts when delays occur, as well as routing documents, automated notifications, templates, etc.

When people are tracked, they are more diligent ... Six Sigma determined real vs. creep requirements, where there was no value added. [Focus Group]

Six months ago, we finished a black belt process (Lean 6 Sigma exercises) to fix our process. It took one year and probably cut our cycle time by one-third. For example, NEPA reviews used to take 30 to 35 days despite past improvements (like giving a questionnaire to the PI); we got together with the groups that do NEPA evaluations. Now, we leverage existing reviews within buildings to satisfy [NEPA review requirements] and brought the time down to 3 working days, with exception of those who don’t have building reviews. (Still 30 days, but in the last 2 years, only one agreement required this.) ... in addition, we implemented a SOW template – this provides a consistent format, and simplifies their review. [Focus Group]

Identification by our Site Office of systemic / repetitive WFO proposal issues [contributes significantly to streamlining]. Periodic meetings are held to discuss these issues with the goal of eliminating them. [Saves an estimated 3-10 days] [Survey]

⁶ While the particular methodology used by a lab was not discussed in detail, the Lean Six Sigma process is generally aimed at speed and quality. That is, speeding core processes, including the examination of the value of process steps and duplicated steps. For a more extensive discussion of these methods, a number of online sources are available [e.g., see “[Driving operational innovation using Lean Six Sigma](#)” (IBM) or this essay, “[Why the Lean in Lean Six Sigma?](#)” (Poppendieck LLC)].

Our system lets you know who approved the agreement previously and how long they have had it ... You can see how long every agreement has sat on what desk. If it has settled a couple of days, you check in – who is on vacation, who is the alternate? ... this is the only way we survive with a large number of reviewers. [Focus Group]

SNL describes its PALs (for CRADAs) and eWFO systems for automated workflow as a true desktop system with the following attributes:

*The **Partnerships, Agreements and Licensing System (PALS)** / **eWFO** is a lab-wide, web-based application and database designed to:*

- (1) Facilitate, track, and control the preparation, approval, execution, and close-out of CRADAs / NFE-FIAs (non-federal entity-funds-in agreements),*
- (2) Document Sandia compliance with established policies and procedures for executing and overseeing CRADAs / NFE-FIAs, and*
- (3) Facilitate the searching, reporting, and analysis of CRADA / NFE-FIA information for both routine and special management inquiries.*

[These systems] provide a customized user interface with the specific functionality and capabilities needed for each user's role in executing CRADAs / NFE-FIAs or overseeing the CRADA / NFE-FIA process. [Survey]

I think the e-WFO system is a best practice; it is used for the entire WFO program and the NFE world has benefited. You enter answers, agreements come out. Instant data searches, metrics, quickly answer queries. [Focus Group]

SITE OFFICE: Use of a common database by the lab and the Site Office is a best practice. [Focus Group]

Several other labs use the eWFO system or are in the process of implementing such systems. For example, the Y-12 Site Office pointed out that the eWFO system is used to review and approve NF proposals and funding documents for both the lab and the Site Office. They, as well as several others, consider eWFO to be a best practice; one notes a particular benefit is that the system provides transparency for the PI.

Other information system examples include:

- SRNL, similarly, has developed WFO EASy™, a Lotus Notes-based electronic system, which
 - ... contains all electronic documentation, contains justification & certification questionnaires, tracks approval processes, allows parallel reviews, provides electronic concurrence, easy to monitor progress, and does have metric reporting. Included custom formats by WFO type, NFE, OFA, intelligence, etc. [Survey]*
- LLNL uses the “eAWP” system that automates the WFO proposal preparation workflow and is a dynamic tool that adjusts the proposal requirements based on proposal type. In addition, it reduces the time required for approvals by automatically emailing proposal notifications to the various reviewers and approvers required.

Several Site Offices point to the use of electronic documents (or a near paperless environment) as significantly streamlining processes (survey responses):

All communication, including the approval letter, is done via email [which] speeds the process.

We have incorporated the use of email for much of our correspondence with all parties, [which] gives us the ability to save on paper, postage, and time of execution.

Agreements sent electronically for review / approval can be forwarded on to the next person without having to carry a file from office to office and [thus] reducing the time a file may sit on someone's desk.

It is important that such workflow automated systems be well designed. One lab respondent reported that the eWFO system initially improved certain things but did not actually affect cycle times until it was put through a significant revision / enhancement. This respondent recommended that such a design should not be developed entirely in-house – with 20-20 hindsight, the recommendation is “don’t do it yourself”; use an outside consultant or supplier.

Conduct Process Steps in Parallel (concurrent), when possible: This is an obvious way to save time. NREL notes, for example, that

We do find that there is a benefit to conducting activities in parallel. We send out the CRADA terms early in the process so that we can be answering questions while we seek approval for the Joint Work Statement. We also send a link to the CRADA Manual with the terms. This allows the Participant's Legal Department to understand the statutory basis for the CRADA provisions so that they don't waste time proposing revisions to provisions which arise from the law. [Survey]

Developing Trust: A trusting relationship between the Site Office, Legal, and the laboratory is essential to a smooth approval process. Some of the components that seem to be associated with developing trust:

- Co-location: Several respondents noted that co-location of Site Office staff and legal (even to the extent of being in the same building) can foster efficiencies, good communication, and trust. Stated another way, physical distance introduces inefficiencies.
- Tech Transfer staff with established credibility with the various lawyers involved in the approval process (see “The Right Stuff” below).
- Early engagement / good communication (see below).

The lab does a very good job of letting us know in advance of any deal that is large, complex, or unusual. It is VERY IMPORTANT for the Site Office to get this early. [Focus Group]

We are where we are as a result of the volume we do. We have experience; trust. The CRADA manager is 99% sure that the Site Office will approve an agreement before she sends it. We have a trust relationship – the Site Office knows that we will come back to them if there is a change needing approval. [Focus Group]

Relationships are a huge deal – that's why things work here. [Focus Group]

Early Engagement: Early engagement of the Tech Transfer Office with PIs, and between the TT Office and the Site Office and legal professionals, is also commonly mentioned as being essential to the speed of business. Early engagement with partners -- sometimes referred to as partner “socialization” in working with the government -- is also essential in helping them to understand the nature of the agreements and the government’s laws and positions on certain issues. Potential issues can be ironed out ahead of time, and potential problems can be addressed, thus saving valuable time. Some believe that “precertification” helps in this regard (it gets issues and “thou shalt nots” out on the table early), although others note that partners just “won’t cooperate” in completing them. Examples of various comments along these lines:

Communication. We [the Site Office] believe that we have a good relationship with our contractor with good communication. Monthly technology transfer operational awareness meetings are held at which CRADAs and WFO projects are highlighted. If the contractor anticipates possible changes to the terms and conditions of the CRADA agreement, they vet these informally with the DOE patent counsel prior to official submission of the agreement to DOE. [Survey]

We have a good working relationship with the DOE Program Analyst at the Site Office and with our DOE Patent Counsel and try to give them a heads up on any out of the ordinary CRADA issues, etc. We also try to timely respond to their requests for information and they reciprocate as well. [Survey]

The Tech Transfer office gets involved on an ad hoc basis during the development of the proposal in a consulting / developing role for new or unique customers, scopes or agreements. Principal Investigators ask for help for foreign work and unique work needs or arrangements to make sure the agreements and SOWs will pass muster. We also bring in the PIs to review proposed programs at the monthly Business Support Planning meeting so questions and concerns are raised and addressed early in the planning process. DOE, contracts, legal, TT, finance reps typically participate so we can head off any concerns ... [Survey]

We encourage them to engage early. About half of the time, our Tech Transfer office engages with the lab’s technical organization (before the “clock starts” on cycle time) – this is not so much negotiation as explanation. [Focus Group]

It is not uncommon for the lab to work with our Site Office to resolve potential issues or in most cases possible language variations to the Modular CRADA. This seems to help with the CRADA approval cycle. On the average, [time savings] could be from one to seven calendar day(s). [Survey]

Typically with NFE customers, we provide a model agreement as early as possible in the SOW discussions to let their legal folks wrestle with the Ts & Cs while the scientist wrestle with the technical issues. [Survey]

“Reusable” Alternative Ts & Cs: Several labs have kept track of approved changes to terms and conditions by the various legal authorities and the Site Office. These approved conditions are reused under certain circumstances in other agreements where warranted. Other labs which have not instituted this practice were quite intrigued by the idea. (“We don’t do that now but probably should and can.” [Focus Group])

Use of Approved, Alternative Model

Agreements: These agreements help to, as one participant put it, “carve out routine interactions ... (such as a Technical Services Agreement)” or deal with issues that consistently create sticking points with certain types of partners (e.g., universities). Use of alternative pre-approved models is discussed at greater length in Chapter III.

It is important for us to take the perspective that there needs to be a new way of doing business that has the active support of our potential clients. This is critical for the ... labs; we’re trying to attract resources to maintain capabilities. [Focus Group]

While most respondents believe alternative models are a “best practice,” another point of view on this from one of the respondents is interesting:

... rather than trying to solve [the] problem by modifying models, we should be able to start with a clean sheet of paper, 1 page that says what we’re doing, how much it costs, who does what; then sign it & start work. This would put [the] Contractor in [a] position of taking risk; not DOE, they should love that. Managing business is what contractors do. Rather than coming up with alternative standard agreements, make each agreement unique & allow DOE to disapprove a bad agreement. [Focus Group]

Education and Guidance Documents: Since new Tech Transfer staff continuously enter the workforce, as well as lab PIs who are new to outside collaborations, such documents are very important to saving “iteration” time.

Education of PIs needs to be on this list [of best practices] – it is a constant process and needs to be done conscientiously. We see varying sophistication across divisions. They need to understand the proposal process, pressure points for DOE & client ... they need guidance; especially the first couple of times through the process. Must clarify client desires – not just “make me happy.” [Focus Group]

For example, SNL provides an extensive WFO guidance document that is available for anyone in the organization – including PIs – to examine. (Some respondents expressed an interest in best practices specifically related to educating PIs about these agreements and suggesting that this might be something to address at a TTWG meeting.) Similarly, ANL has developed a centralized portal, “CRADA Central,” in which the tools and information needed to initiate, process, and complete a CRADA have been placed.

Tech Transfer Staff with “The Right Stuff”: Staff for Tech Transfer positions need a unique combination of skills. As one respondent said, it requires flexibility and not ego. In addition, the ability to understand legal terms and issues is essential, and they need to “be able to establish credibility with legal staff.” These capabilities are noted as being specifically important to smooth internal processing; obviously, there are many other ideal qualities necessary for tech transfer staff.

Information Templates: Several laboratories note that standardized templates for providing information are used. This helps to insure that whoever needs to provide the information has a full list of what is required and when. For example, one lab created a SOW template, which simplified the review for the Site Office (see right).

The Lean Six Sigma exercise led to modifying the PI Package by introducing a “check the box” format for Ds & Cs, improved instructions, and omitted redundant and restricting questions. [This] reduced the time to prepare the SOW and related documentation from 39 to 15 days. [Survey]

Tech Transfer as a Site Office Mission / Site Office Education:

Some laboratory respondents point out the importance of having the Site Office staff fully on board in terms of their appreciation of the importance of tech transfer to DOE and in viewing it as a *legitimate* part of their mission, as well as being well trained on tech transfer policies and orders. However, in some cases, this appeared to be more of a recommendation than a “best practice” that was actually established at their location. It is not clear, according to some laboratory respondents, that Tech Transfer officials and Site Office reviewers are actually working with the same understanding of tech transfer and related rules, regulations, policy or procedure changes, and interpretations therein. Some Site Office staff are reported to have little formal education related to tech transfer.

Tech transfer is the #1 priority to us, and it drops to #9 immediately outside this group. It is probably #90 to the Site Office. ... Site Office personnel responsible for tech transfer transactions need to have a common understanding of orders and policies; the Site Office must have Tech Transfer as part of its mission. [Focus Group]

It is important to note that all respondents adamantly believe that process uniformity across DOE labs in agreement execution processes is NOT desirable. Each laboratory is different (staffing, makeup of the pool of participant / sponsors, etc.) and uniformity of process across the labs – something that would likely only come about via centralized control – would not accommodate such differences.

We have found ways around onerous personality-driven problems [at the local level]. A “common mode” would upset the gains made. ... Every lab is different, every lab specializes, each has different clients. [Focus Group]

Such uniformity, they say, would wash out any gains in productivity made at the local level. One example of differing local approaches is a “one-stop-shop” vs. separation of CRADA and WFO operations. The “one-stop-shop” approach to agreements pursued at some labs, where there is a single office that handles both CRADAs and NF-WFO agreements, has unique advantages, according to some respondents. Others prefer a separation of CRADA and WFO operations: representatives of one lab commented that the intellectual property office wants licensing staff intimately involved in the CRADA process and wants them to work alongside the PI on CRADAs; whereas WFO agreements are different – a deliverable, not a collaborative effort, and thus unlikely to generate IP.

Another example of a strong difference in preference is in providing CRADA partners or NF-WFO sponsors with sample agreements used by a lab early in the process. There is a difference of opinion as to whether this practice is always helpful. While it is our sense that most labs find this a useful way to get the potential issues out on the table early, one lab in particular firmly believes that giving a partner a sample NF-WFO agreement ahead of time,

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before all the critical parameters are understood, would be more confusing than helpful to the partner.

C. Recommendations from Respondents

Overall Empowerment of the Lab to Execute Agreements: A number of labs expressed the desire to be more empowered to execute agreements under certain conditions (e.g., no change in terms and conditions) using internal oversight mechanisms, giving DOE notification only, and auditing rights. This is both a matter of trust and an apparent willingness of M&O operators of the laboratories to take on more risk for these agreements, as they do in other endeavors. There is some overt acceptance of this idea from one Site Office respondent (see right); however, this idea was not directly addressed with Site Office respondents as an issue in either the surveys or discussion groups and we do not know how widespread this feeling among Site Offices may be.

Some of the comments related to empowerment, either with regard to reviews or execution of agreements: [Focus Group comments:]

... 9 to 12 people at the Site Office review CRADAs, with no credit given for [our] prior contractor review. There is no action until the CO is comfortable and gets concurrence from all these parties. [Focus Group]

... there are contractor assurance management systems in place; why not use them? You [DOE] pay us to do this – let us do our job. (Do you have concerns about assuming more risk?) No. No more so than anyone else in that business would assume in order to develop the business. [Focus Group]

I think we [the Site Offices] should be overseeing the forest; what we currently have is a tree inspection program. [Focus Group]

Trust the existing system on site authorization documents in the D&Cs [Determinations & Certifications] or JWS [Joint Work Statement] – trust the existing system if the site was previously certified (NEPA and safety and health).

Three related suggestions:

- *Important that [the Site Office] takes integrated management systems into account. So, for example, if a certain laboratory has received ESH certification, you allow that again by citing the existing authorization document. Due diligence is already done. Why treat a CRADA or WFO any differently than you would another project?*
- *NNSA permits our lab to execute WFO amendments under \$1M – we'd also like to see the same for CRADAs ...*
- *[Recommend only involving] the CO if there is a change to terms and conditions or major changes [to the model]. Under [strict] parameters and up to a specific \$ level, let us “go forth and do good.” The Lab could enter these agreements under certain defined conditions, and DOE would only audit the lab periodically.*

“Contractor Assurance System” [is a good idea] – DOE audits, but empower the lab. So many of the agreements are standard.

Our Site Office is singularly unwilling to do Umbrella CRADAs; that's just wrong ... They also take issue with blanket proposals as well; as if we were trying to “sneak something in” that increases their risk. Like a Task Order Agreement. ... Managing business is what contractors do.

In fact, a number of laboratories agree that allowing the laboratory to manage standard agreements within certain bounds (a ceiling on dollar amount, no special circumstances) is a very good idea, with DOE retaining the authority to audit as they choose.

Delegating Laboratory Signature Authority: One suggested best practice arising from the discussion groups is to delegate signature authority to the most knowledgeable person at the lowest staff level. This avoids delays resulting from waiting for a single busy executive to fit a review into their schedule or to return from travel or illness. Examples of such delegation were found at several laboratories, where the manager of the technology transfer function or selected members of their staff have delegated authority to sign CRADAs. However, we also found examples (that may increase cycle times) where signature authority is retained at a high level in the laboratory organization:

*The Laboratory Director has **delegated authority to sign CRADAs** to the Associate Laboratory Directors, who are usually more accessible than the Lab Director. This possibly shortens the cycle time for entering into CRADAs. [Survey]*

CRADA goes through the Lab Director [review] who wants assurance of legal OK. This is the current Director's decision (tech transfer office used to execute the agreements before this). It takes one to two weeks (if the Director is on travel). It can be delegated one step down, but the Principal Associate Director [is] also very busy. [Focus Group]

Delegating Site Office Signature Authority:

Laboratory respondents note that Site Office Contracting Officers are often overburdened, with many other responsibilities than those related to agreements with non-federal entities (NFEs). The extent to which COs are familiar with NFE agreements can be quite variable, according to some respondents. In addition, some respondents noted that COs are responsible to DOE Headquarters and are independent from the local Site Office.

It would help to have the CO dedicated to CRADA & WFO agreements. ... Yes, we only get a small slice of her time. [Focus Group]

Tech Transfer is only one of [the Contracting Officer's] responsibilities and often seems to be the least critical or important. [Survey]

One laboratory respondent makes a strong statement about using a Contracting Officer Representative for approval of CRADA transactions:

*[We] strongly **endorse a return to the use of the DOE Contracting Officer Representative (COR) for the approval of CRADA transactions [versus] the current practice of Contracting Officer (CO) approval.** The COR was a knowledgeable federal employee who worked in the Operations Office Technology Transfer program office and was delegated this approval responsibility. During the DOE Technology Transfer Initiative which "introduced" the CRADA to American industry and which spanned around nine years in the 1990's, around \$330M worth of federally funded CRADAs between [our lab] and private industrial Partners were approved by the COR without a single issue and / or incident of the misappropriation or misuse of taxpayer money. In addition, from 2000 until 2004 (when the NNSA Site Offices took responsibility for the Technology Program) the Operations Office COR approved >200 CRADA transactions worth many millions of dollars without issues. Today most CRADAs are funded by private companies with only occasional use of DOE or Other Federal Agency funding. In spite of this paucity of federal*

funding, a higher level of scrutiny is required by the local NNSA Site Office by employing a CO to approve all CRADA transactions. The few CO's available are also employed to approve all other "work packages" even those which come directly from OFAs or from DOE / NNSA HQs (e.g., nuclear weapons and Office of Science). Hence an unnecessary bottleneck often develops when too few CO's are overwhelmed by approvals of \$[number omitted] billion worth of laboratory work annually. At a minimum, DOE / NNSA should consider COR approval when standard CRADA terms and conditions already approved by the CO are used. [Survey]

Observation: The issue of CO signature delegation may be one for further study by DOE. It is our impression from the comments in the discussion groups that such delegation happens rarely, if at all.

The FDP has a one-page form with attachments – all agencies, including DOE, have agreed to this – why not just take that as the flowdown model [for CRADAs and NF-WFO agreements]? [Focus Group]

“Flowdown” Issues: Delays in agreement execution can occur when a prime Contract is issued to an NFE and the DOE-approved terms (by which the laboratory can engage with the NFE through a CRADA or WFO agreement) are different from those of the prime contract. One example of such a flowdown issue is a difference between the payment schedule of the prime Contract and the advance payment requirements of DOE. Several respondents recommended that DOE consider adoption of the **Federal Demonstration Partnership (FDP)** terms for flowdown projects.

Advance Payment Issues: Respondents often mentioned DOE's current policy on advance payments as a factor that increased cycle times. As noted above, this policy is particularly problematic when the funding cycle of the prime funding sponsor does not match that required by the Advance Payment policy. Respondents recommend that DOE should review this policy as well.⁷

... as a new measure – we plan to take advantage of options for advance payments described in CRADA Manual and DOE Accounting Handbook – specifically, as appropriate, accessing WN02 funding and in some cases utilizing M&O Contractor funding. [Survey]

Additional Education, Training and Briefings: Training for Tech Transfer staff and Site Office Staff is an underlying concern for a number of these respondents. Educating PIs is important, too, and this issue came up in several discussions.

[The Site Office Contracting Officer] has had no formal training in DOE's tech transfer mission and only self-education on the relevant orders. ... DOE needs to have people whose JOB it is to do this, not the last to arrive (the "stuckee"). Very few Site Office guys are involved with TTWG. Consistency across Site Offices would help. Need to have same level of understanding – a common understanding is what's missing from #2 on the list (i.e., Good relationship / communication with Site Office.) ... Need education, information sharing ... along with transparency. [Focus Group]

⁷ A TTWG study of alternatives to the Advance Payment Policy, headed by Deborah Payne of SNL under the guidance of the DOE Technology Transfer Coordinator (Karina Edmonds), is currently underway. In addition, current policy allows for WN02 funds and M&O Contractor funds to be used to provide advanced payments. It is not clear how widely these current options for dealing with advance payments are known throughout the Complex.

Education of Pls is important – get better quality proposals. [Focus Group]

Education of new Tech Transfer people is important, too. [Focus Group]

Finally, there seems to be a sense that better briefing materials for potential CRADA partners are needed. One laboratory gives potential partners examples of previously acceptable agreements; another pointed out that they need brochures to give to potential partners:

*Would be nice if they [potential participants] knew what a CRADA is – **DOE needs a brochure**. (Someone remembered that there used to be one floating around, very old.) ... CRADA negotiations are longer. There is a need for industry to understand what a CRADA is, before coming in. Some labs are trying to do that through their websites [as well as the new tech transfer website]. We need something for use on a DOE-wide basis. [Focus Group]*

Networking and Sharing Information: Several labs specifically point out that the TTWG and the Battelle Commercialization Council are themselves “best practices,” allowing technology transfer officials to learn and share with each other. During one discussion group, there was extensive dialogue regarding the need for an additional informal discussion forum for tech transfer staff as a way to ask questions and tap the collective intelligence of their peers. A listserv was the approach that ultimately seemed most appealing.⁸ Other information of interest is a list of peer contacts at other laboratories, as well as information about the partners with which each laboratory has worked (to the extent allowed for by confidentiality provisions).⁹

⁸ It has been suggested that the “Requests for Information” section of the Contractor Financial Management Alliance’s (CFMA) website could be used as a model for this purpose. The CFMA approach – requesters e-mail their requests to the Clearinghouse and the request in turn is forwarded by a website administrator to the contractor community. Answers are then posted on the website, as well as sent directly to the requester and other interested parties.

Additional information supplied by Deborah Payne of SNL – **Background:** MSIC (now renamed Contractor Financial Management Alliance (CFMA)) consists of a representative from each of the DOE / NNSA Management and Operating (M&O) Contractors. This body is established to seek and communicate best practices, seek or share information, conduct annual meetings, maintain a website that contains relevant current and archived info, and work DOE/NNSA issues in the integrated M&O contractor financial management area. The M&O contractors each provide a small amount of funding to pay for an INL employee (website coordinator) to spend ~50% of his time doing all this Alliance management / support (title is CMFA Executive Director).

Clearinghouse: One of the support functions is a clearinghouse where any M&O contractor can ask a question; the question is sent to the CMFA Executive Director by the questioning M&O; he distributes the question to his email distribution list (each M&O has provided him 1-2 email addresses); M&O contractors can respond to questions based on their own interest, but most do because they see value in sharing; as part of the response, M&Os will either ask the CMFA Executive Director to distribute all responses back to the responding M&O or be silent. The CMFA Executive Director will provide all responses to the questioning M&O and any responding M&O that has asked to see all responses, as well as posting these Qs & As on the website.

⁹ While TTWG membership lists may seem to suffice here, this list does not necessarily include all those working on the front lines of tech transfer who would be the equivalent “peers” for any number of respondents to this study, and secondly, it is not clear how widely the list of TTWG members is distributed among those less active in TTWG (as compared to the Voting Members). The TTWG list of members has been posted online (this may not be known to those not actively involved in TTWG) – the direct link is <https://www.ameslab.gov/files/Directory10-15-2010.pdf>, which is available from this page: <http://www.ameslab.gov/techtransfer/ttwg>. In addition, there are staff lists available from the tech transfer office websites for most labs.

Regarding laboratories and partners, one respondent mentioned that DOE’s Office of Scientific and Technical Information (OSTI) provides a searchable, public database of R&D Project Summaries, which includes summaries of ongoing or recently-completed projects performed by DOE laboratories (<http://www.osti.gov/rdprojects/index.jsp>). The database includes projects funded through a variety of funding mechanisms, including CRADAs. However, it is not clear how comprehensive this database is, and it appears that it may no longer be updated. The website currently contains this notice to laboratories: “R&D project information will not be collected by OSTI for FY 2010 for the R&D Tracking System. This includes information for new as well as ongoing projects.”

Improve DOE HQ Interactions: Clearly there are challenges in working with DOE HQ that affect cycle times. Respondents are often unclear who it is they need to go to for approvals or questions and want to make dealing with DOE HQ easier and timelier. (From their comments, we get the impression that this is functioning like a complex operation without a Help Desk.) Some of their thoughts:

It can take 10-20 days just to identify the right person to go to at HQ – it is often not clear which technical program applies. [Focus Group]

... it would help the CO to have a single POC in DC to get answers, like in the Office of the Tech Transfer Coordinator. (One Site Office respondent reported that, in the past, there were conference calls on tech transfer topics where people were allowed to ask questions.) [Focus Group]

[Agreed-upon cycle times:] DOE approval to work with a foreign company (can add months to the cycle time). It would be nice to have a policy such that “if [the lab has] not heard from you in 2 weeks we’ll deem you approved” or something like that. [Focus Group]

*HQ needs to delegate activities to the Site Office, so **that control is closer to the source**, and delegate more control to the labs. [Focus Group]*

Additional Ideas:

- One of the laboratories is working with the Site Office to develop a simplified JWS (based on the DOE CRADA Manual) questionnaire for CRADAs to “turn an arduous process into succinct statements.” [Focus Group]
- One laboratory recommends “removing WFO contract clauses that are self-deleting or irrelevant because the proposed work does not involve issues governed by those articles.” [Survey]
- Supply a **list of priorities** for approval to overworked / overburdened Contracting Officers in Site Offices. This helps the lab ensure that overdue or high profile / high importance agreements get timely attention from the CO.

D. A Note on Some Unusual Practices

Some labs and Site Offices have practices that appeared to be unique or at least unusual that are likely to increase cycle times, or at least make agreement processing more burdensome. It may be useful, with further study, for the involved laboratories and Site Offices to consider revising or eliminating these features in the interest of adopting best practices. These include:

- At one lab and Site Office, three sets of lawyers are involved in reviewing all agreements, even if there are no changes to standard terms and conditions.
- At one lab, there is a long stretch of time between receiving funds and work authorization, which was stated to result from having to formally modify the M&O contract (based upon the Site Office CO's interpretation of 412.1a) before work can begin.
- At two labs, the Site Office does not take certifications into account that have been granted for other projects and / or conducted already by the laboratory itself (for example, ES&H certifications that have been obtained from other reviews for a facility to be used for a NF-WFO project). Each certification is examined individually by the Site Office, with no credit given for prior contractor review.
- At one lab, a representative of the procurement department is involved in a 3-person team (procurement, legal and technology transfer functions) that, in addition to the PI, manages CRADA processing and execution.
- At one lab, an extensive "pre-certification" process is required from the project PI before the Tech Transfer office begins work. This has the advantage of getting "thou shalt nots" out on the table early so there are no surprises later on, but definitely contributes to longer cycle times overall.
- At one Site Office, as many as 11 people representing different Site Office functions are typically involved in reviewing and approving CRADAs.

E. Recommendations

Prior to the writing of this report, a presentation on the findings from this study was made at the TTWG meeting held in early November of 2010. Based on this review, recommendations for both incremental and “sea change” improvements were made, and are shown below.

TTWG Meeting (November 2010)

Recommendations for Incremental Improvements

- Eliminate process redundancies (e.g., capture in Lean Six Sigma review)
- Capture and monitor cycle times
- Educate and communicate across the DOE complex to improve consistency and eliminate potentially unnecessary activities
 - Improved networking resources
 - Adopt “Federal Demonstration Project” (FDP) terms that all Federal Agencies have agreed to for flow-through issues
- Capture and reuse previously approved alternative terms and conditions
- Delegate approval / signature authority to the lowest possible level (job function) having accountability for and knowledge of the transaction
- Train & empower back-ups for key positions
- Involve functions / individuals in the agreement execution process only if there is a specific need to do so
- If the level of activity justifies it, develop and use agreement templates for specific partner types
- If the level of activity justifies it, develop and use an automated information system for tracking and accountability
- Assign responsibility for CRADA and NF-WFO agreements to an individual(s) in the Site Office with accountability for technology transfer
- Reexamine the need for HQ approval of certain agreements; if found to be needed, expedite process and identify a single point-of-contact for obtaining the required approval.

Recommendations for “Sea Change” Improvement

Study Findings:

- Several laboratories have authority to enter into certain types of agreements without specific Site Office approval, e.g., service agreements; agreements below a certain dollar threshold
- Use of the above approach was found to reduce total cycle times to ~ 2-4 weeks, and in some cases, less than a week

Recommendation:

- Implement a “contractor oversight” approach for most agreements
- Limits would need to be defined, but could include: Agreements not involving foreign entities; Agreements where no changes are made to terms of particular concern to DOE (e.g., U.S. competitiveness, indemnity, etc.); Agreements on which no changes are made compared to an agreement previously approved by DOE with the same partner; Agreements below a certain \$ threshold
- Contractors would still need to go through the necessary process steps and keep the required documentation: DOE could audit at any time
- On average, cycle times would be likely be reduced by two weeks or more

III. Background on Agreements Processing

It is important to note that the data shown in this chapter on the number of new agreements executed at each laboratory is only intended to provide context to the cycle time data and process step analysis and is not the focus of the study. Although the survey numbers are generally in agreement with those obtained annually by Bob Hamilton of the Oak Ridge Operations Office, there are some differences as noted in the footnote on the next page. It is beyond the scope of this study to analyze the number of agreements in further detail.

It is interesting to note that about 80% of the laboratories processed less than 15 total CRADAs in FY09. By contrast, about 30% of the laboratories processed less than 15 NF-WFO agreements. By addition, a high percentage of the CRADAs executed at many of the laboratories were 100% funds-in CRADAs, indicating the many of the agreements with NFEs are funded by non-DOE sources.

A. Agreements Processed

To provide context for responses, study participants were asked about the number of newly-executed agreements and continuations and amendments to agreements processed in FY09. A wide range of workflow is reflected in the labs represented.

The labs executing the largest numbers of newly-executed agreements in FY09:

- CRADAs: NREL, LANL, and SNL
- NF-WFOs: LBNL, LLNL, ORNL and SNL.

When considering all new CRADA and NF-WFO agreements, the labs with the largest overall numbers processed are LBNL, LLNL, NREL, SNL and ORNL.¹⁰

For the labs responding to this survey, a reported total of nearly 170 CRADAs and more than 750 NF-WFOs were executed in FY09. The majority of the labs responding (10 of 16) reported 9 or fewer new CRADAs in FY09; five of the participating labs had fewer than 15 new NF-WFO agreements. These numbers, of course, do not reflect the dollar size of these agreements, or the complexity of such agreements. Nevertheless, they do reflect the range of experience any given lab has with different clients and the variety of complexities possible.

Table 5: FY09 New CRADAs Executed

FY09 New Agreements Executed	CRADAs	
	Number of Labs	% of Labs
4 or fewer	5	31%
5 to 9	5	31%
10 to 14	3	19%
15 to 24	2	12%
25 or more	1	6%
<i>Total Number of New Agreements Reported: ~170</i>		
	Mean	10.5
	Median	7
	Range	0 to 49

¹⁰ If PNNL's new agreements in FY09 under its Use Permit arrangement were to be included here, it also would be among the labs having a large number of executed agreements with non-Federal entities (see footnote next page).

Table 6: FY09 New NF-WFO Agreements Executed

FY09 New Agreements Executed	NF-WFO Agreements	
	Number of Labs	% of Labs
4 or fewer	3	19%
5 to 14	2	12%
15 to 24	2	12%
25 to 34	1	6%
35 to 44	0	0%
45 to 54	1	6%
55 to 64	3	19%
65 or more	4	25%
<i>Total Number of New Agreements Reported: > 750</i>		
	Mean	47.8
	Median	36.5
	Range	1 to 161

Table 7: FY09 Agreements Processed, by Laboratory¹¹

Laboratory / Facility	FY09 CRADAs		FY09 NF-WFO Agreements	
	New	Continuations / Amendments	New	Continuations / Amendments
Ames Laboratory	1	5	1	9
Argonne National Laboratory (ANL)	4	9	61	28
Brookhaven National Laboratory (BNL)	6	23	18	15
Idaho National Lab (INL)	10	26	48	123
Los Alamos National Laboratory (LANL)	21	68	58	94
Lawrence Berkeley National Laboratory (LBNL)	7	11	161	255 (est.)
Lawrence Livermore National Laboratory (LLNL)	8	31	127	431
National Energy Technology Laboratory (NETL)	6	0	n/a	n/a
National Renewable Energy Laboratory (NREL)	49	79	55	44
Oak Ridge National Laboratory (ORNL)	10	16	88	141
Pantex Plant	n/a	n/a	10	0
Pacific Northwest National Laboratory (PNNL)	14	20	25 ¹²	5
Princeton Plasma Physics Laboratory (PPPL)	0	1	1	4
Sandia National Laboratories (SNL)	20	36	83	161
Savannah River National Laboratory (SRNL)	4	4	8	13
Thomas Jefferson Laboratory (TJL)	7	4	2	4
Y-12 National Security Complex (Y12)	1	0	19	15

¹¹ Data on DOE CRADA and WFO agreements are collected and reported each year by Robert Hamilton of the Oak Ridge Office. The numbers of CRADAs and Non-Federal Work for Other agreements executed in FY2009 reported in the survey are *generally* in line with the official numbers, although there are some significant differences between Hamilton's numbers and survey data on the number of NF-WFO agreements in several instances. (Since more time has passed since these figures were collected, it may be that some labs have refined their estimates in the interim. It may also indicate a lack of adequate tracking mechanisms.) A detailed table showing comparisons of survey numbers and Bob Hamilton's numbers is provided in the Appendix, Section E.

¹² PNNL has a unique arrangement, called a "Use Permit," which allows the laboratory Contractor to access Government laboratory facilities and staff for its own research and technology-sharing activities. Conversely, it also allows the Government access to the Contractor's privately-owned facilities and equipment. All access is on a full cost-reimbursement basis. This arrangement also provides the Contractor with the ability to negotiate contracts directly with non-federal partners for R&D activities falling under its Use Permit. PNNL executed 221 new agreements with NFEs in FY09 under its Use Permit arrangement.

B. Involvement by New Participants or Sponsors

Respondents were also asked about how many of the new agreements executed in FY09 involved brand new participants or sponsors. We included this question in the survey with the idea that it might be easier and faster to process agreements with repeat customers than with new customers. In addition, repeat business with a laboratory may be a measure of satisfaction with the lab's overall performance, including agreement processing cycle times. Anecdotally, we discovered in the focus group discussions that this is not necessarily the case by any means. The relationship between cycle times and estimated percentage of new customers is discussed in Chapter VI.

**Table 8: New Participants / Sponsors (FY09 Agreements)
(Estimated by Laboratories)**

(Numbers reflect only one fiscal year, and may not be indicative of an average year)

Lab / Facility	FY09 Total New CRADAs	CRADAs: FY09 New Participants	New Participants (% of Total)	FY09 Total New NF-WFOs	NF-WFO: FY09 New Sponsors	New Sponsors (% of Total)
	(n)	(n)	(%)	(n)	(n)	(%)
<i>Average*</i>			62%			33%
Ames	1	1	100%	1	0	0%
ANL	4	2	50%	61	25	41%
BNL	6	1	17%	18	9	50%
INL	10	6	60%	48	8	17%
LANL	21	9	43%	58	12	21%
LBNL	7	6	86%	161	38	24%
LLNL	8	8	100%	127	11	9%
NETL	6	5	83%	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>
NREL	49	45	92%	55	33	60%
ORNL	10	4	40%	88	30 <i>(est. - not tracked)</i>	34%
Pantex	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	10	1	10%
PNNL	14	8	57%	25	15	60%
PPPL	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	1	0	0%
SNL	20	5	25%	83	34	41%
SRNL	4	4	100%	8	4 <i>(est.)</i>	50%
TJL	7	4	57%	2	0	0%
Y12	1	1	100%	19	2	11%

** Ames and Y12 not included in CRADA average; Ames, PPPL, and TJL not included in NF-WFO average – too few agreements to be meaningful.*

Generally speaking for most labs, new partners are more common in CRADA agreements (62% on average) than in WFO agreements (33% on average) according to the survey data. Expressed another way, repeat customers are generally more common for WFO agreements.

Three labs – ANL, ORNL, and PNNL – had percentages of new customers that are roughly equivalent for CRADAs and NF-WFO agreements. Two labs – BNL and SNL – had a higher percentage of NF-WFO agreements than CRADAs involving new customers. Such variation is not surprising given the number of factors affecting the nature of a lab's partner pool.

C. Additional Detail on Agreements

1. Funds-in CRADAs

Respondents were asked how many FY09 newly-executed CRADAs involved 100% or partial funds-in agreements. These numbers show a high degree of variability among laboratories in terms of the relative proportion of agreements that are either partial or 100% funds-in. Ten of 15 laboratories reported that approximately 50% or more of new CRADAs executed in FY09 were partially or totally funded by the CRADA partner. Four laboratories reported that 100% of their FY09 CRADAs received at least partial funding from the partner for laboratory efforts.

Table 9: FY09 Funds-in CRADAs

(Laboratories shown in descending order of number of new CRADAs)

Lab / Facility	FY09 Total New CRADAs	100% Funds-In CRADAs	Partial Funds-In CRADAs	Total (partial+ 100%) Funds-in CRADAs	%* 100% Funds-in CRADAs	%* Partial Funds-in CRADAs	%* All Funds-in CRADAs
	(n)	(n)	(n)	(n)	(%)	(%)	(%)
NREL	49	14	10	24	29%	20%	49%
LANL	21	18	3	21	86%	14%	100%
SNL	20	11	1	12	55%	5%	60%
PNNL	14	1	2	3	7%	14%	21%
INL	10	2	2	4	20%	20%	40%
ORNL	10	1	3	4	10%	30%	40%
LLNL	8	7	0	7	88%	0%	88%
LBNL	7	0	7	7	0%	100%	100%
TJL	7	4	1	5	57%	14%	71%
BNL	6	4	0	4	67%	0%	67%
NETL	6	1	2	3	17%	33%	50%
ANL	4	0	0	0	0%	0%	0%
SRNL	4	3	1	4	75%	25%	100%
Ames	1	1	0	1	100%	0%	100%
Y12	1	0	0	0	0%	0%	0%

* Percentage of total new FY09 agreements.

2. Approvals for Changes to Verbatim Language / Fundamental Intent in CRADAs

Lab respondents were asked what types of changes to the verbatim language or to the fundamental intent of CRADA provisions require approval by DOE (Site Office, Operations Office, Headquarters, or other non-lab entity) and responses are shown in the table below. There appears to be substantial variation among labs and their Site Offices regarding what changes to CRADA documents require DOE approval.

Notable is a comment by NREL that all CRADA terms require approval by the Site Office Patent Counsel, even if there are no changes to the standard terms. Changes to fundamental intent of CRADA provisions by NETL require approval by DOE Headquarters.

Table 10: CRADA Changes Requiring DOE Approvals

What types of changes to the verbatim language or to the fundamental intent of the provisions need to be approved by DOE (Site Office, Operations Office, Headquarters, or other non-lab entity)? (Check all that apply)

- Any change to the verbatim language of the DOE Modular CRADA needs approval;
- Any change to the verbatim language of the CRADA Manual options needs approval;
- Only changes to the fundamental intent of the provisions of either the DOE Modular CRADA or the CRADA Manual options need approval.

Lab	– Any change to the DOE Modular CRADA	– Any change to CRADA Manual options	– Only changes to the fundamental intent of the provisions
Ames	--	--	Yes, Chicago Patent Counsel
ANL	--	--	Yes, DOE Argonne Site Office (ASO)
BNL	Yes, Site Office	--	--
INL	Yes, Site and operations	Yes, Site and operations	--
LANL	--	--	Yes, NOTE: LANL attorneys will approve minor changes to CRADA language that clarify provisions requiring NNSA attorney concurrence
LBNL	--	--	Yes, Site Office
LLNL	--	--	Yes, Los Alamos Site Office (LSO)
NETL	--	--	Yes, HQ
NREL	Yes, Site Office	Yes, Site Office	Yes, See note: All CRADA terms require approval by DOE Site Office Patent Counsel, even if there are no changes to the standard terms. Changes to language which is double-underlined in the CRADA Manual require DOE Headquarters Legal Office approval.
ORNL	Yes, <i>entity left blank</i>	Yes, <i>entity left blank</i>	--
PNNL	--	--	Yes, DOE Patent Counsel - [COMMENT BELOW TABLE: "We request DOE Patent Counsel approval if the CRADA Participant is requesting a revision to the double underlined verbatim language used in the DOE Modular CRADA or CRADA Manual options, or if they are requesting a substantive revision that changes the intent of a clause."]
SNL	Yes, DOE / NNSA Legal; Sandia Site Office (SSO); Contracting Officer (CO); Program Office	Yes, DOE / NNSA Legal; SSO CO; Program Office	--
SRNL	Yes, <i>entity left blank</i>	--	Yes, <i>entity left blank</i>
TJL	--	--	Yes, Site Office
Y12	Yes, ORO	Yes, ORO	--

(PPPL left this question blank)

3. Notification to Site Office of NF-WFO Proposals

Respondents were asked if the Site Office requires that a new proposal for a WFO agreement with a non-Federal entity be approved before the lab / facility responds to the request from a potential sponsor, OR if the notification to the Site Office can be made concurrently with submitting a proposal.

Only two labs (ORNL and Y-12) report that the proposal must be approved by the Site Office before the lab responds. These two labs report that the approval of the proposal takes anywhere from 1 to 4 days (one reported “1 to 2 days” and the other said “3 to 4”). Most labs (11, or nearly 70%) say that notification can be made concurrently with submitting a proposal, and a few (three labs) report that that no notification to the Site Office is required prior to sending the proposal / agreement to the sponsor.

Table 11: New NF-WFO Proposal Notification

Does the Site Office require that a new proposal for a WFO agreement with a non-Federal entity be approved before the lab / facility responds to the request from a potential partner, OR can the notification to the Site Office be made concurrently with submitting a proposal?

	Laboratories (n=16) (n shown)
Proposal must be approved by Site Office before the lab / facility responds	2
Notification to Site Office can be made concurrently with submitting a proposal	11
No notification to the Site Office is required prior to sending a proposal / agreement to the sponsor	3

D. Alternative CRADA and NF-WFO Models

1. CRADA Models Currently Used and Customizations

Participants were asked about the CRADA agreement models used at their laboratories and facilities.¹³ Responses for each are shown below. All labs use the DOE Modular CRADA or an approved Modular CRADA customized specifically for their laboratory (three labs). Four of the 16 labs also use the Short Form CRADA; eight also use the USIC CRADAs. (This question did not bring out all of the alternatives used by the labs, and these are reported in the next section.)

Table 12: CRADA Agreement Models Used

Lab	DOE Modular	Short Form CRADA	USIC ¹⁴ CRADA	Other Forms
Ames	YES	NO	NO	NO
ANL	YES	NO	YES	YES – Cooperative Agreement Linker CRADA
BNL	YES	NO	YES	NO
INL	YES	NO	NO	YES – DOE approved modified CRADA template for work performed at INL's supervisory control and data acquisition (SCADA) testbed.
LANL	YES	NO	YES	YES – Modular Umbrella CRADA approved by DOE / NNSA
LBNL	YES	YES	YES	YES – Multi partner CRADA
LLNL	NO (see last column)	YES	YES	YES – LLNL Laboratory Model (based on DOE Modular Agreement)
NETL	YES	YES Simplified CRADA for CRADAs where combined funds are less than 150k	NO	YES – [No description provided]
NREL	YES	NO	YES	YES – Master CRADA with Project Letter Agreement. [described in next section of this report].
ORNL	YES	YES (almost never)	YES (very few anymore)	NO
PNNL	YES	NO	YES	YES – FreedomCAR (deviation to Article XXII, “US Competitiveness and Preference for United States Industry”)
PPPL	NO [see last column]	NO	NO	YES – We use a specific CRADA negotiated between DOE and Princeton University.
SNL	NO [see last column]	NO	YES	YES – Modified DOE Modular Agreement (customized for the Site and approved by DOE / NNSA Site Office Contracting Officer and NNSA Legal).
SRNL	YES	NO	NO	YES – University Model has been pre-approved by DOE [described in next section of this report]
TJL	YES Model CRADA No. DOE Model 483.1-1 January 12, 2001	NO	NO	NO
Y12	YES	NO	NO	NO

¹³ Respondents were also asked if their lab prepared a separate JWS as part of the standard set of CRADA documents. All but NETL replied “yes.” Responses to the follow-up question -- on the general information included in the JWS, the role of the JWS document in the CRADA agreement execution process and how the JWS gets approved – are provided in the Appendix, Section E.

¹⁴ U.S. Industry Coalition CRADA. See for example: http://www.bnl.gov/tcp/SponsoredResearch/linkable_files/doc/IPP_model.doc.

Four labs – INL, PNNL, SNL, and SRNL – report that they have approved standard modifications to their lab standard model.

- INL and SRNL have modified versions of the export control provision (SRNL: “Our **export control provision** contains explicit direction on discussions with foreign nationals being considered an „export“”).
- PNNL has alternative language related to the “Title to Subject Inventions” article:

Under Article XV, “Title to Subject Inventions,” rather than include the option terms in Paragraph D, we state in Paragraph A that, “The Participant has chosen to obtain an option for an exclusive license to Contractor’s Subject Inventions according to the terms and conditions of the Option Agreement in the attached Appendix B.” Then in Appendix B we put the terms of the option, i.e., when it must be exercised, who to notify to exercise, field of use definition, notice to CRADA Participant that such license will be subject to retention of rights by the Government as well as march-in rights, and that specified license and patenting fees, royalties and diligence requirements will be negotiated by the parties. If any other license terms are pre-negotiated, we include them in Appendix B. [Survey]

- SNL reports that it has modifications related to product liability and guidelines for pre-designation of protected CRADA information:

Sandia has developed detailed guidelines for the “pre-designation” of Protected CRADA Information (PCI) in the CRADA SOW, although these are seldom used. Also, the DOE / NNSA Legal counsel does not permit Sandia to offer the standard DOE manual optional language for Product Liability which allows the Partner to purchase additional Product Liability Insurance. [Survey]

2. Alternative CRADA Models and NF-WFO Agreements

Alternative-approved agreement models are considered a “best practice” – these have evolved to meet specific needs or to address issues that appeared repeatedly with agreements. In addition to the laboratory-customized models and modifications mentioned above, these alternatives work to streamline execution processes.

- **Umbrella CRADAs:** Several labs mention using umbrella CRADAs. Here, the terms and conditions are negotiated once, and project task statements are then added and approved as needed. For example, one lab reports...

In such situations where [our lab] has already worked with the same CRADA Partner in the past, [we] often extend an offer to the CRADA Partner to enter into an Umbrella CRADA. The advantage is that the Umbrella CRADA Ts & Cs need only be negotiated once. After the Umbrella CRADA Ts & Cs are successfully negotiated, a Project Task Statement (PTS), akin to a statement of work, can be quickly drafted and executed for subsequent work, thus saving considerable time and effort in not having to negotiate new CRADA Ts & Cs for each new piece of work. [Survey] “We don’t enter into umbrella CRADAs per se ... rather these have evolved with companies we have worked with over and over.” It’s a judgment call on who we offer this option to; the usual policy is that we won’t process such an agreement unless there is a project list and funding in place. This streamlines only the Ts & Cs with partner; [we] have to get CO approval on task statements and amendments. We don’t enter into an umbrella agreement unless it’s going to be active and committed long-term work; the intent

is to add work in other areas. Even on Umbrella CRADAs, we must get CO approval. An umbrella agreement typically reduces repeat cycle time by one-third... [Focus Group]

- **University CRADAs:** SRNL reports that “a separate model agreement was generated and approved by DOE for CRADAs with **universities**. This addressed issues associated with terms and conditions for indemnification, publications, and export control. While we have yet to execute one of these, the new model is expected to save 30 calendar days for CRADAs with universities. [We are also developing] a **Hybrid CRADA** that would address having both universities and large corporations as participants to the same CRADA.” [Survey]
- **Master CRADAs:** NREL reports that a Master CRADA with a Project Letter Agreement is “used in situations where we are performing the same scope of work under separate agreements with a number of different companies. DOE approves the Joint Work Statement once and signs one Master CRADA. NREL signs a Project Letter Agreement with each company.” [Survey]
- **Master MOA Agreement:** SRNL reports that “a new initiative is proceeding – [we have developed] a master MOA-type agreement with regional university partners to document agreeable terms and conditions with a goal to streamline negotiation on individual CRADAs and other agreements ... AND ... When federal funding is flowing directly to a university partner and to SRNL, in lieu of a CRADA, a Memorandum of Agreement may be executed to reaffirm/clarify the Parties obligations to each other relative to specific issues (e.g., confidentiality, publications) if both Parties desire it and a Joint Intellectual Property Agreement may be executed upon generation of joint intellectual property. [Survey - comment modified after survey completed]
- **WFO Service-Type Agreements:** Several variations of these service agreements exist, but what they have in common is a limited scope and a maximum dollar threshold. The following examples are mentioned in the surveys:

Ames: The Lab may use the **Technical Service Agreement** for certain WFO[s] less than \$15K where the Laboratory is performing a technical service and not research. We have not yet entered into one of these; they only became available to us in FY2010.

INL: Technical Services Agreement (TSA). If the following criteria are met, we can process the TSA without receiving DOE’s approval but must notify them after the fact.

—Sponsor is a U.S. entity —Work does NOT involve Research & Development — Maximum cumulative funding does not exceed \$50,000 (U.S.) —The sponsor is aware that all work will be on a full cost recovery basis —Period of performance will not exceed 12 months —Work will not compete with the private sector — Work will not involve any classified or intelligence programs — Work will not involve a foreign sponsor — Work will not involve technical assistance to a foreign national or involve any foreign national employee, assignee or visitor —Work will not involve the transfer of any technical information, software, equipment or commodity to a foreign national —Work will not involve subcontracting to a U.S. Company or university that will employ foreign nationals to complete the work. —Work will not involve or give rise to personal private information, intellectual property, proprietary information, business sensitive information, security, official use only or environmental concerns. — Work will not involve software development — Work will not involve any activities not normally performed by BEA —Work will not involve the sending or exchange of hazardous material(s) —Work will not involve nuclear non-proliferation detection technologies —Work will not involve space nuclear reactor, non-commercial power reactor, and

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radioisotope power source projects —Work will not involve construction or modification to Laboratory facilities —Work will not involve use of human or animal subjects —Work is not in response to a Request for Proposal (RFP) —Work will not create a burden on DOE resources —Funding will not be used for facilitating, organizing, or administering work-shops or conferences on behalf of the sponsor. —Work will be consistent with and not interfere with INL missions.

NREL: We have two streamlined WFO agreement types:

- The **Technical Services Agreement**, which is for work that involves no development of Intellectual Property, is very streamlined, in that there is a pre-approval by DOE, within a certain work scope and if terms are not altered. The dollar limit on these is \$250K, duration limit is 3 years. We save about two-thirds of the processing time using this mechanism (roughly 40 days saved).
- The **Analytical Services Agreement**, which is for work that involves use of standard NREL equipment such as spectrometry or calibration, is similarly streamlined. For work that is no longer than 3 months in duration, no more than \$25K, and with domestic Sponsors. We save nearly three-quarters of the normal WFO cycle on these (i.e., about 45 days).

ORNL: We have a short-form WFO agreement, called a **Material and Services Order Form**, that can be used when the work to be performed for the sponsor is either a service, or making and providing a material (i.e., no R&D involved). It is a two-page, non-negotiable agreement that we use often. It often, but not always, reduces cycle times by 75% or more.

Y12: Has two types of these agreements:

- The **Material and Services Order Form (MSOF)** is an abbreviated version of the NFE Contract that we are allowed to use for any project that does not involve Research and Development. It is a one page front and back form. The front contains customer information, scope of work, period of performance, and funding information. It receives a signature from the customer and then from our Contracting Officer. The back page contains Terms and Conditions. It does not require Y-12 Site Office approval unless the project is \$250k or greater or if the total funding per customer exceeds \$350k in a year. YSO receives copies of all MSOF's after they are executed.
 - **Master Proposal** – the majority of our NFE projects consist of calibration work performed by our Metrology Organization. These are small dollar value jobs, typically \$2 – \$5k, that occur throughout the year with various customers. We have a master proposal approved by YSO that gives us a ceiling amount of funding we can accept under this proposal in a five year period. Each individual job does not require a proposal in the system. We execute an MSOF for each individual job.
- **Other WFO streamlining** occurs in models developed for certain customers or within certain parameters:

BNL: Repeat Sponsor WFOs – [We have] established model agreements with sponsors that we work with on a repeated basis. DOE has delegated authority to BNL for executing these model agreements. [Survey]

NREL: Work with the **California Energy Commission** is relatively easy due to the pre-negotiated set of terms and conditions adopted by the Labs several years ago. [Survey]

LBNL: *We have a **short form WFO agreement** that can be used for small WFO (under \$150K and has no IP or indemnification). [Survey]*

SNL: *The five approved **FIA (funds-in agreement) templates** are regular agreement, foreign funded, state entity, federally funded, and no R&D. [Survey]*

It is important to note that in nearly all cases where the technical services agreements were used, **significant reductions in cycle times** were reported.

Observation: While some of this reduction can be attributed to the nature of the work under these agreements (for example, low probability of IP being developed), the shorter cycle times may also be the result of the Contractor being allowed to execute these agreements without formal case-by-case approval by the Site Office. Expansion of this approach to broader categories of agreements may result in a significant reduction in cycle times.

E. Other Information

1. Number of Staff Involved in Agreements Processing

Rough counts of the number of roles (people) involved in the agreement execution process, both at the lab and at the Site Office, were taken from the detailed listing of process steps in the questionnaire. Respondents varied widely in the degree to which they were comprehensive in their replies to this question, and several respondents simply did not provide this information. Nevertheless, these counts give us a qualitative indication of the number of people who actively participate in processing a document prior to agreement execution.

Generally speaking, in addition to the PI and any partner entities, approximately 7 to 9 laboratory staff in major roles are involved with the agreement execution process, and 3 to 4 are involved at the Site Office. The numbers reported vary widely – for example, on the laboratory side, the number of people involved ranges from 3 to 18 people (including those involved in reviews, such as NEPA, HARC, etc.). For Site Offices, the numbers reported range from 1 to 12 people (in a few labs, special reviews are conducted by the Site Office and not the laboratory; in one case they appear to be done by both offices, since according to the laboratory, credit is not given for prior laboratory / contractor reviews).

A comprehensive list of roles mentioned for each type of agreement is shown below. Where the roles appeared to be equivalent, we listed them together. (Partner roles are often not defined or may not be fully known to respondents, and they are not included in the table. When mentioned, individuals involved in the process include the technical POC, legal, and at least one executive officer such as the CEO / CFO.)

Table 13: Roles Involved in CRADA / NF-WFO Agreement Processing**** List of Roles / Titles Mentioned by All Respondents *****(Each lab has a subset of these; where the roles appeared to be equivalent from lab to lab, they are listed together)*

CRADAs	NF-WFOs
<p>Laboratory:</p> <ul style="list-style-type: none"> • Principal Investigator • Technology Department / Division Chair / PI Group Leader • CRADA Coordinator / Administrator • Agreements Specialist / TT Analyst • CRADA Account Manager • Tech Transfer Director / Manager (occasionally includes other lab administrators from R&D, e.g., Sr. Mgr. of Industrial Partnerships & Strategy Org.) • Business Development Executive / Commercialization Manager • Marketing / Sales Management Specialist / Market Analyst • Special Reviews (for some labs, these roles are taken by the Site Office) <ul style="list-style-type: none"> ➢ ES&H / Environmental Reviewer ➢ HARC Manager (as needed) ➢ CRADA Account Manager ➢ Export Control Officer ➢ Counter-Intelligence Officer / Operational Security ➢ NEPA Manager ➢ IRB / IACUC ➢ Classification (Authorized Derivative Classifier) • FreedomCAR / OVT Program Manager • Licensing Executive • Laboratory Legal / Contractor Legal / Patent Attorney • Budget Office / Analyst / Procurement Officer / Contractor CFO / Finance / M&O Contracts Organization • Lab Property Management Administrator • Lab Director / Deputy or Associate Director • Clerical 	<p>Laboratory:</p> <ul style="list-style-type: none"> • Principle Investigator • PI's Manager / Other division manager(s) • Tech Transfer Manager / Director • Research Partnerships • WFO Agreements / Administrative Specialist • Agreements Manager • Commercialization Manager / Market Analyst • Tech Transfer Account Manager • Special reviews; <ul style="list-style-type: none"> ➢ Counter-intelligence Officer ➢ Security / Operational Security ➢ Export Control Officer ➢ ES&H ➢ NEPA • WFO Manager / Business Officer • IP Attorney(s)/ Legal / Contractor Attorney • Clerical • Procurement / Contracts Administration / Budget Officer • Research Department Chair / Administrator • Finance / billing / CFO / Comptroller / Budget Office • Laboratory Director / VP / Executive Mgmt.
<p>Site Office:</p> <ul style="list-style-type: none"> • Contracting Officer (CO) • DOE Program Manager / Reviewer • SMEs • Contract Specialist • Patent Counsel (may be in operations office; may involve multiple reviews) • COI (conflict of interest) Manager • IP Attorney • Operations Office CRADA Coordinator (1 lab) • NNSA CFO • [DOE HQ as needed] 	<p>Site Office:</p> <ul style="list-style-type: none"> • Program Manager / reviewer / Project Officer • Budget analyst • DOE HQ (foreign sponsor) • Patent Attorney (may involve those at Ops Office or NNSA Service Center) • One lab – technical reviewers in these areas: Legal, IP, Security, Finance, NEPA, ES&H, Infrastructure

2. Documentation Developed

When respondents recorded the documentation developed at each step, the responses varied once again from very brief to extensive. Two examples from laboratories that provided the most extensive responses are shown below as illustrative. The numbers are sequential.

Table 14: Examples of Documentation Generated for CRADAs

Two Examples of Documentation Generated for CRADAs	
1. JWS created - from technical division CRADA initiation questionnaire	1. Revised SOW (if necessary)
2. Statement of Work - from technical division	2. Email from CRADA Manager (CM) to IP Transactions Manager for CRADA file and development of Appendix B (Option) and Appendix D (Background IP listing) for CRADA by IP Transactions Manager.
3. NEPA review - from technical division	3. (step: Request work or funding authorization from Technical Staff) Retained for CRADA file and to provide to Associate Laboratory Director when requesting his signature on the CRADA and for final CRADA package for Site Office. CRADA Participant's response email for CRADA file.
4. Funding summary - from technical division	4. Review / approval email from CI and Export Control for CRADA file and inclusion in final CRADA package for Site Office.
5. DOE program manager concurrence email - if needed for non-program manager directed CRADAs.	5. Review / approval email from IACUC or IRB Chair for inclusion in final CRADA package for Assoc. Lab Director and Site Office & CRADA file; if required, revisions made to SOW.
6. Intellectual Property review	6. DOE Patent Counsel provides email to IP Transactions Manager (which is included in final CRADA package for Site Office); revisions made to SOW and / or Article VIII if required. IP Transaction Manager provides revised CRADA documents to CRADA Participant.
7. Review for potential overlap with ongoing WFO agreements.	7. Completed conflict of interest (COI) forms retained in final CRADA file.
8. Report on Trade Representative web page regarding Foreign CRADA Participant country trade issues that might impact CRADA.	8. Revised CRADA documents and email confirmations of acceptance of negotiated language for CRADA file.
9. Requests for reviews	9. DOE Patent Counsel provides email to IP Transactions Manager indicating which revisions are, and are not, acceptable. IP Transactions Manager documents CRADA file and includes DOE Patent Counsel's email in final CRADA package for ALD signature and Site Office.
10. Export Control review report	10. Two original CRADA Participant signature pages - one for CRADA file and one for CRADA package for PNSO.
11. Counter-Intelligence review report.	11. Three original ALD signature pages - one for CRADA file, one for CRADA Participant and one for CRADA package for PNSO; and completed / signed COI for CRADA file.
12. Model CRADA	12. Two original CO signature pages - one for CRADA Participant and one for CRADA file.
13. Transmittal letter	13. Email for CRADA file.
14. Pre-agreement Certification.	14. Copy of transmittal letter in CRADA file.
15. Completed Conflict of Interest Certifications.	15. Copy of internal memo in CRADA file.
16. Completed Participant Pre-Agreement.	16. Email for CRADA file.
17. JWS	17. Pdf copy of Invoice
18. Transmittal letter	18. Email for CRADA file
19. Completed U.S. Competitiveness certification form.	19. Funding authorization sent to Laboratory technical staff and IP Transactions Manager to document CRADA file
20. DOE program manager concurrence email - if this is not a program directed CRADA. This is determined by language in the DOE Funding Document that would direct the Lab to do a CRADA with a certain Participant.	20. Copy of internal memo in CRADA file
21. Approval letter	
22. CRADA drafts	
23. Transmittal letters	
24. Final CRADA draft	
25. CRADA Package review forms	
26. 5 copies of CRADA contract	
27. Transmittal letter to DOE, describes CRADA model used	
28. Conflict of Interest forms	
29. NEPA form	
30. CRADA funding summary	
31. DOE Program Manager concurrence	
32. Export Control and Counterintelligence approvals	
33. Transmittal letter to PRO [procurement] Officer.	
34. DOE approved CRADA	
35. Transmittal letter to Participant.	
36. DOE approved, Laboratory executed CRADA.	
37. Fully executed CRADA (Step: Executes the CRADA and returns to it to Procurement Officer.)	
38. Fully executed CRADA (Step: Distributes the completely executed CRADA to Laboratory staff.)	
39. Invoice for Advance Payment	
40. Check for Advance Payment	

It is evident from the table above why automated workflow systems would be beneficial to the agreement execution process.

Two examples of documentation developed during the NF-WFO agreement execution process are shown in the table below. The necessary documentation generated by these agreements appears to be much less complicated than for CRADAs, on average.

Table 15: Examples of Documentation Generated for NF-WFOs

Two Examples of Documentation Generated for NF-WFOs	
1. WFO Checklist. Internal memos to Counterintelligence and Export Control.	1. Proposal (Step: Proposal created in electronic information system)
2. Review comments added to WFO Checklist.	2. Approval record (Step: Approved by PM's supervisor)
3. Counterintelligence approval memo.	3. Approval record (Step: Approved by Program Director)
4. Export control approval memo.	4. Approval record (Step: Approved by Legal)
5. Signed WFO Checklist.	5. Approval record (Step: Approved by CO)
6. Signed and approved WFO proposal package.	6. Approval record (Step: Approved by Classification)
7. DOE approval letter.	7. Approval record (Step: Approved by Tech Transfer)
8. Determination of WFO agreement format.	8. Approval record (Step: Approved by Site Office Program Manager)
9. Applicable patent right clause.	9. Approval record (Step: Approved by Site Office CO)
10. Applicable rights in technical data clause.	10. Contract (Step: Contract Developed)
11. Executed contract.	11. Invoice (Step: Pro Forma Invoice Developed)
12. Authorization to begin work.	12. Letter (Step: Contract / Invoice sent w/Cover Letter from Program Director)
	13. Certification (Step: Funding Certified by ASC)
	14. Fin[ancial?] Plan (Step: Fin Plan Received)

Site Office documentation (as reported by Site Office respondents) typically involves:

- Concurrence emails on various approvals (e.g., technical, financial, legal, SMEs if applicable, and "outside actions" (e.g., HQ))
- Letter or email with CO approval

IV. Cycle Time Variability

A. Perceptions of Variability

Survey respondents were asked whether there was significant variability in cycle times in the agreement execution process and what the reasons are for this variability. Almost all of the laboratory respondents report significant variability in cycle times for both types of agreements. Site Offices are less likely overall to perceive variability in their approval cycle times. It is interesting that laboratories are more likely to perceive significant variability in cycle times for CRADAs than for NF-WFO agreements, while the opposite pattern appears to be the case for the Site Offices.

Table 16: Perceptions of Cycle Time Variability

In your experience, are there significant variations in the cycle times for the CRADA / NF-WFO agreement execution / approval process at your lab / facility / Site Office?

	Laboratories		Site Offices	
	CRADA Execution (n=16)	NF-WFO Execution (n=16)	CRADA Approvals (n=12)	NF-WFO Approvals (n=13)
Yes, variability	94% (15)	75% (12)	33% (4)	54% (7)
No	(1)	(4)	(8)	(6)

B. Reasons for Variability

Reasons noted for cycle time variability are quite diverse, as could be expected, but negotiation with participants and sponsors over Ts & Cs is a major factor in delays, along with the necessity to obtain approvals from DOE Headquarters. During focus group discussions, we presented study participants with a list of factors pulled from the questionnaires and asked for a review of these factors during the session (see box). This list was generally viewed as a good summary of such factors. One additional factor mentioned is the legal venue (agreeing on the location of governing law for the agreement – for example, the state where the lab / Site Office are located, or where the partner is located).

Strawman List: Factors adversely affecting cycle times (Prioritize Top 5; what's missing?)	
1.	Negotiation of terms and conditions with Partner, e.g., intellectual property rights; U.S. Competitiveness Act / Alternative net benefit; export control; organizational conflict of interest; advance payment / indemnification T&Cs (WFOs)
2.	Required signature approval delays (e.g., Contracting Officer, Lab Director, etc.)
3.	Approval times by ... DOE Site Office; DOE HQ or other DOE entity
4.	TYPE OF PARTICIPANT: Foreign companies, Large companies, Universities, Multi-party agreements
5.	Staffing bottlenecks at Lab / Site Office / Other DOE Office
6.	Legal reviews by Participant(s) and / or by Lab / Facility / Site Office
7.	Appropriate transaction questions? (e.g., WFO vs. CRADA vs. ??)
8.	Receipt of advance payment
9.	Third party funding: NFE's funding is coming from another source
10.	Other ... ?

Figure 3: Focus Group Handout – Factors Adversely Affecting Cycle Times

In the discussion groups, respondents confirmed that negotiation of Ts & Cs is the most important factor in variability, followed by the advance funding requirement. Respondents vary on how they would rank the remaining factors, depending on their local situations, but deciding upon the appropriate transaction (CRADA vs. WFO) question was infrequently mentioned as a key factor in cycle time delays.

...the time our process takes pales in comparison to the time for negotiation of non-standard language ... the same issues come up every time – U.S. Competitiveness, indemnity, product liability and IP terms are always the hangup. So if we want to speed process, focus there. Those 4 – 5 factors add up to 90% of agreement [sticking] points. [Focus Group]

The majority of our NF-WFO agreements are U.S. federal funds to a third party to us. The advanced funding / flow-down issue is becoming an increasing problem. [Focus Group]

1. Reasons for Variability: Laboratory Survey Responses

Respondents were asked for the three or four main sources of cycle time variability in the agreement execution process study. Here are some key quotes from these responses.

a) CRADA – Lab Surveys

Partner-related issues: Sources of variation from the sponsor noted are revisions to DOE standard Ts & Cs, intellectual property rights; corporate legal review delays; last minute legal reviews by the sponsor, and the nature of companies of differing sizes (sophistication, familiarity with government business practices, use of lawyers to negotiate, etc.). Note that one lab reports that the pre-agreement certification must be received before the agreement is sent to the Site Office, and this can create major delays.

- *Delay in receiving the CRADA **Preagreement Certification** from Participant. The executed Preagreement Certification must be received from the Participant before the JWS / SOW can be submitted to DOE.*
- *Even after our commercialization managers have negotiated CRADAs, some participant's **legal counsel** will not fully review the CRADA until it is partially signed. As a result, some CRADAs come back from the participant in one day, some come back with proposed changes and others aren't returned for months.*
- *I think the **sophistication of the partner also drives the cycle times**. Smaller to medium-sized firms are more likely to accept the CRADA language as is or with minimal changes. Larger firm attorneys weigh in heavily.*
- ***Company hired lawyer**; execution takes way longer when a large business with their own attorneys are involved or are hired to work with the Lab to negotiate the CRADA.*
- ***Large company slowness** versus **small / medium company speed** in turning around negotiations and related supporting paperwork.*
- ***Large companies** (i.e., oil & gas) tend to request more changes to terms and conditions, resulting in a longer negotiations, reviews and approvals.*
- ***Small businesses** tend to take longer to return signed documents and advance funding payment.*
- *In some cases, **lack of sponsor interest at high (signatory and legal review) levels**.*

Terms and Conditions / Advanced Funding:

- *Sponsor requires significant revisions to DOE pre-approved terms and conditions.*
- *Time required for review / approval of **non-standard (non-modular) CRADA language.***
- *Negotiation of substantive changes to **the CRADA terms, an alternate net benefit statement for Article XXI or an Intellectual Property Agreement** (if signature of the CRADA is tied to signature of the Intellectual Property Agreement).*
- *CRADA Participant requests rights in Subject **Inventions** other than the standard option to negotiate an exclusive license or requests rights in background IP, so the negotiation of IP rights gets drawn out.*
- ***Advance funding** - Depending upon the company and where the company is getting their funds to enter into the CRADA, receiving the advance funds can take a day, a week, or months.*
- ***Advance payment** requirement when **universities** are involved.*

Internal Reviews / Issues: These include reviews required for foreign-owned entities, internal reviews, DOE HQ approvals, funds-in CRADAs, and staffing bottlenecks, particularly with legal.

- *CRADA Participant requests rights in Subject **Inventions** other than the standard option to negotiate an exclusive license or requests rights in background IP, so the negotiation of IP rights gets drawn out.*
- *DOE Program approval for CRADAs with **foreign** or foreign-owned entities can take a month or more.*
- *Whether the CRADA partner is U.S. based or foreign (**foreign partners** may take longer due to legal issues)*
- *In some cases, time required to get **DOE Headquarters approvals.***
- ***Alternate Benefit** approval if **US Competiveness Clause** is not acceptable*
- ***IPP [Initiatives For Prolif & Prevention] CRADAs** require lengthy review by Operational Security for **export control issues.***
- *Time required for internal **legal** review.*
- ***IRB [Internal Research Board] approval** process for **human subjects research.***
- *CRADAs involving **biotechnology** have more in-depth reviews, taking longer to approve.*
- *For **EERE funded CRADAs** that require Program (FreedomCAR or Office of Vehicle Technologies) review (i.e., where the project is re hybrid vehicle technology, advanced combustion technology, advanced lightweight materials technology, etc.), **we've sometimes had to wait for weeks (6 or more) for them to complete their review** and notify us whether any revisions are required to the SOW or Article VIII, "Obligations as to Protected CRADA Information".*
- *Organizational **Conflict of Interest (OCI) considerations** with regard to [M&O Contractor] agreements.*
- ***Lack of DOE funding** for CRADAs necessitates **funds in** approach.*
- *Necessity to involve legal counsel from DOE, M&O Contractor, and partner in each decision, and **lack of preapproved terms for range of situations.***
- ***Key personnel are on vacation, travel, or involved in major Lab reviews.***

Other Factors:

- *Time to get principal investigator to respond for requests for input to JWS.*
- *If a CRADA is "walked around" instead of sent via office mail, CRADA approvals are faster.*

b) NF-WFO – Lab Surveys

Sponsor-related Issues: Third-party funding; advance funds; sponsors' legal reviews; and sponsor delays are mentioned:

- *Company waiting to finalize contract with their funding source.*
- *Approval obtained but funding not awarded (proposals).*
- *Advance funding - Depending upon the company and where the company is getting their funds to enter into the CRADA, receiving the advance funds can take a day, a week, or months.*
- *Ability to make advance payment quickly or at all. / Waiting on the prime award before we get our WFO.*
- *Sometimes have a less-than-motivated sponsor at the signatory and legal review levels.*
- *Sponsor official may have approved template early in process, but when Sponsor actually receives the executed FIA, they balk at signing, send to their Legal organization and modification requests to terms and conditions must be addressed.*
- *Acceptance of Ts & Cs. / Sponsor wishes to contest the terms and conditions / provides significant requests for change.*
- *Sponsor's return of the signed agreement.*

Type of Sponsor: Foreign entities, universities, familiarity with process / agreement

- *Increase in number of agreements with universities; universities are typically granted up to a year to put these kinds of agreements in place post-award, so they are often in no hurry.*
- *Foreign approvals by HQ. / Sponsor is state- or foreign-owned.*
- *Approval process for non-US sponsors.*
- *Sponsor familiarity with process and agreement mechanism.*
- *Sponsor's relationship with laboratory before the current WFO ; Sponsor's contract representatives experience*
- *Multi-party (more than 2) WFOs take much longer to agree on Terms & Conditions.*

Internal Issues:

- *Time and availability of reviewers.*
- *Quality of Scope of Work.*
- *Site Office frequently does not accept Lab's SMEs determinations and certifications ... [and occasionally] asks intrusive questions of Pls and sometimes the Sponsor or makes unreasonable requests for documentation ... the Site Office [used to] accept Contractor's SMEs certifications and audited agreements annually. However, when there was a change in personnel, the Site Office dropped this practice. As a result, approval times went from 5 to nearly 20 days.*
- *If the source of funds are federal or foreign, required [Laboratory] IP review.*
- *Contracting Officer [Site Office] delay*
- *Processing time depends on requirements and complexity – NEPA, foreign involvement issues, export control / ITAR, etc.*
- *Key personnel are on travel, vacation, or involved in major Lab review.*
- *Method of obtaining approval signatures: e.g., "walk around" vs. "interoffice mail."*

2. Reasons for Variability – Site Office Survey Responses

For CRADAs, Site Office staff most often cite changes to terms and conditions and legal reviews as creating variability in approval time. At one Site Office, approval by the CO is noted as creating delays. For NF-WFOs, foreign sponsors (or federal), and the necessity to have DOE HQ review / approval, contribute to cycle time delays. Specifically noted is the Office of International Science and Cooperation (see also discussion of DOE HQ approval times in Section VI). A few quotes from the respondents are shown below.

CRADAs:

- *Language change to agreement (getting sponsor, Lab and DOE's comments) / Time required for non-standard CRADA language*
- *1) Deviations from model CRADA language requiring additional concurrences and approval by DOE. Note that this requires 1-2 extra days on the DOE average approval time for the CRADA agreement. 2) Outside reviews by other [DOE] offices that may be required*
- *Time required for industry legal review / Time required for laboratory legal review / Two different legal office approvals are required*
- *CO approval*

NF-WFOs:

- *Requirement for approval from the Office of International Science and Cooperation ... This can take up to 45 days.*
- *If the source of funds are Federal or foreign, requires Site Office IP review*
- *International agreements have the only variations*

C. Staffing Issues

Understaffing can contribute to cycle time variability and delays. For example, when only one individual is available for a certain activity, or if that individual is out of the office or overloaded with work, delays can occur. When asked whether the lab is critically understaffed to handle its typical workload for any steps, about 40% of the laboratories report understaffing on laboratory functions. Site Offices are significantly less likely to report understaffing for Site Office functions.

Table 17: Understaffing

Is your lab / facility critically understaffed to handle its typical workload for any of the steps involved in CRADA / NF-WFO agreements? IF YES: Please indicate the steps where your lab / facility is critically understaffed and whether understaffing is a major or minor contributor to delays in executing these steps.

- Seven of 16 labs reported understaffing for CRADAs (44%) and six labs reported understaffing for NF-WFO agreements (38%); of these, four labs / facilities report being understaffed for handling both CRADA and NF-WFO agreements.
- One Site Office reports understaffing for CRADAs, and another reports understaffing for NF-WFOs.

Understaffing at laboratories is by no means confined to small labs – it is reported by a mix of small and large laboratories and by labs with a range of large and small Tech Transfer workloads. In some cases, understaffing is confined to a particular department (e.g., export control) that is not under the control of the technology transfer function in the laboratory.

In several cases, this understaffing was considered transitory or limited to a particular department. One lab noted that while they have actually been able to reduce cycle times because of a Lean Six Sigma analysis and the resulting improvements in procedures, tech transfer employees are running at maximum capacity and that is unlikely to be sustainable over a long period of time. Detailed comments from surveys on understaffing are given below:

Large laboratory:

- **CRADAs:** *All steps are affected by understaffing. We experienced a reduction in staff of about 30% due to budget reduction in FY08. We have made progress in cycle time improvements since then, but not to the optimum level of where we would like to be.*
- **NF-WFOs:** *Contract negotiations with NF sponsor, major [understaffing]; coordination and resolution of proposal issues with CO, PI, and RA, minor [understaffing]*

Laboratory with large CRADA workload:

The volume has been high the last few years and staffing available for CRADA Coordinator activities has been subject to variation.

Two laboratories, one with a large workload of both CRADAs and NF-WFO agreements report on export control review delays:

*The **Export Control / Customs** group has been understaffed for some time. The **IP Management Team** within Tech Transfer also is understaffed, causing delays in BIP reviews.*

*Cycle times could be reduced with additional staffing in our **export control** department and technology deployment.*

One laboratory and its Site Office report understaffing for WFO agreements:

*There is **only one individual in the WFO Office to review / approve all proposal actions**. If that individual is gone, all actions come to a halt. In addition, peaks in action volume can also contribute to delays. [The Site Office makes the same statement and adds: Also there is only one CO to review / approve all proposal actions.]*

Site Office for Large Laboratory: This Site Office points out that while they do not consider themselves critically understaffed, approvals are affected by the Contracting Officer's workload.

Small Labs / Site Offices:

CRADAs and NF-WFOs (lab): *The Tech Transfer staff consists of approximately 2.5 full time equivalents. The budget office is understaffed to provide the proposal oversight and budget formulations for proposals. Depending upon the time of year, the scientific areas may be understaffed with support personnel since proposal submissions may be cyclical.*

CRADAs (lab): **M&O Contract Administration** is understaffed for a range of tasks. No backup **for laboratory subject matter expert** or Contracts Administration is available when CRADA Program Manager is unavailable.

CRADAs (Site Office): *In small Site Offices such as ours, employees have multiple major responsibilities they have to prioritize. **Sometimes there are actions that are more important than approving a CRADA** such as HQ data calls, budget submittal time, year-end purchasing, M&O Contract MODs, etc.*

CRADAs and NF-WFOs: *Legal assigns a small percentage of one attorney's time to IP issues (all IP issues – not just CRADA). ... AND ... I wouldn't say that we are "critically understaffed" but we don't have a backup approver for our Legal OCI review. This can cause delays if the approver is out of the office.*

D. Steps Prone to Delays (Survey)

In one section of the survey, respondents were given free rein to outline their process steps (as opposed to using one of the models presented in the questionnaires), and part of this exercise involved specifying whether a step was prone to delays and why. The discussion here provides a high level overview of the rich detail provided in the surveys. (Data reported on steps in the execution process in this part of the survey was filled out inconsistently, and the level of detail varied greatly. The number of steps discussed below is illustrative only.)

Roughly calculated, laboratory respondents reported an average of 4 to 5 steps being prone to delays for CRADAs and 3 to 4 steps for NF-WFOs. Respondents almost always mention the following as delay factors:

- **Non-standard Ts & Cs** create delays both in terms of negotiations, internal reviews, Site Office reviews, and sometimes DOE HQ reviews, and often necessitate additional legal review by the laboratory.
- **Advance funding / work authorization step:** This step is prone to delays for a number of reasons, including the Sponsor's internal delays, ability to "cut the check" and get it to the lab, and as one lab described it, the lab's "cumbersome and step-intensive process for receipt of funds through DOE and [the lab's] financial systems". Another described the latter as "confusing to participants." In addition, one laboratory mentioned that the M&O contract must be modified for these funds to be officially received, and depending on the point in the updating cycle, this can hold up the authorization for as much as a month. In one case, the requirement for a sponsor to obtain a Certificate of Deposit from the Federal Reserve was mentioned as a delay factor.

Lab respondents also frequently mention:

- **Foreign entity participation**, requiring a review by DOE HQ.
- **Staff limitations:** Either availability (e.g., several labs require a signature by the Lab Director), workload because of understaffing, and the Site Office's CO's limited availability create bottlenecks at a number of steps. In some cases, staffing limitations related to particular internal reviews (e.g., export control) can create delays.
- **Last-minute changes:** Sponsor's balking at the last minute with signed agreement, and requesting further changes or legal reviews.
- **Legal:** Backlog of work in the legal department often creates delays.

Our observation is that the more people that must be coordinated at any given step, the more delays may occur, based on simple availability of staff or schedules. Here are several examples from survey data where this delay factor contributes to cycle time delays:

Step: *Complete CRADA negotiation with CRADA Participant (if participant requested revisions and to request CM review for nonstandard IP rights)*

Cycle time: *15 days*

Reason prone to delay: *We generally like to have at least one conference call to discuss requested revisions and this may be delayed because of scheduling conflicts.*

Step: Approval by Site Office SMEs

Cycle time: 30 days (est.)

Reason prone to delay: Involves 12 Site Office Staffers – travel or vacation by this staff, or coincides with a major Lab review.

Early in the process, lab respondents mention some of the following factors in creating delays:

- The documentation required initially from the PI and sponsor in the proposal, SOW or JWS can create delays when incomplete information is provided by the PI / Sponsor.
- Failure of the sponsor or PI to put a priority on returning pre-agreement certifications, certification letters, participant data sheets, or other preliminary information required by the laboratory.
- When cost estimates are recalculated at the beginning of the Fiscal Year, this can create delays.
- For NETL, “CRADA concept discussions,” which are geared to determining the value of the work to NETL, can sometimes be quite lengthy and cause delays at the early stage. This step involves more than 10 people.
- Participants sometimes stall the final SOW review due to legal reviews.
- The SOW doesn’t have adequate provisions for IACUC or IRB (animal care / human subjects), which subsequently require revisions.

One example noted by a laboratory:

Step: Obtain [CRADA] pre-agreement certification from procurement to ensure compliance with DOE U.S. Competitiveness article acceptance and determine participant type.

Cycle time: 35.5 days

Reason prone to delay: Participant wants legal review, which may slow down the process; Participant may not perceive that it is important to return the completed agreement on a timely basis – despite repeated contacts urging return of the document.

During the review by the Site Office, factors cited which create delays include:

- Funds-in CRADAs – one lab notes that review of these agreements can take up to 10 days longer than those not involving funds-in.
- The Contracting Officer’s (CO) availability / workload (and sometimes the experience with these types of agreements). “There is only a single CO with no backup, thus causing a delay in approval.”
- Requests for additional information by CO (this is the last step in the Site Office review process).

During negotiation of Ts & Cs with participants / sponsors, some lab respondents note that a partner’s inexperience can create delays, as well as the urgency to put an agreement in place, e.g.,

Participant’s inexperience with DOE contracts; coming to an understanding of / negotiating indemnification, U.S. manufacture, advance payment, IP, CRADA option; Participant attorneys often unfamiliar with USC, FARs, etc. [Survey]

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Many CRADA partners are unfamiliar with the complex terms and conditions in a CRADA; requires long periods of explanation and negotiation. [Survey]

Participant interest varies substantially for urgency in getting CRADAs completed. In some cases firms will wait for several months before engaging in discussions. This can occur in situations where the Participant has a cooperative agreement with DOE. They often chose to complete cooperative agreement negotiations with DOE before starting CRADA negotiations. [Survey]

Finally, one lab mentions delays related to CRADAs funded by the FreedomCAR or OVT (Office of Vehicle Technology) programs:

Step: *(Ad hoc) Send “final” [CRADA] SOW to DOE Patent Counsel for review if CRADA is funded by FreedomCAR or OVT and review is required based on subject matter of project.*

Purpose: *For DOE Patent Counsel to send to FreedomCAR or OVT to review to determine whether any revisions are required to the SOW or to Article VIII, “Obligations as to Protected CRADA Information” as to performance data that should be publicly releasable (i.e., not protected as Protected CRADA Information).*

Cycle time: *21 days*

Reason prone to delay: *FreedomCAR or OVT is slow to respond, has often provided incomplete responses to DOE Patent Counsel, etc.*

Observation: Although all of the laboratories and Site Offices appeared to address the major requirements (e.g., export control, fairness of opportunity, conflict of interest, etc.) in their review and approval processes, the manner in which the requirements were addressed and the documentation / approvals required for addressing them appeared to vary widely across the complex. Two of the biggest factors in the variation appeared to be (on the basis of comments made in the discussion groups) the relative level of involvement by legal staff (both Contractor and DOE) in the process, and, for some labs, the degree to which the Site Office accepts the various assertions and certifications made by laboratory personnel related to the requirements.

E. Failure to Execute Agreements and Customer Complaints

1. Failure to Execute

Failure to execute agreements because of cycle time delays, according to respondents, is fairly infrequent. The majority of the labs report no failures over the past five years and those that do generally report small numbers.

In discussion, we learned that INL had conducted a study of 45 CRADA and WFO agreements that failed to execute over the past four years. The top five reasons for failure to execute involved indemnification, venue jurisdiction, IP issues, U.S. Competitiveness, and finally, “it just took too long.”

Respondents were asked to estimate how many agreements had failed to execute because of cycle time delays in the past five years:

- Among the 16 labs answering about CRADAs, only 4 (25%) noted at least one failed agreement, and the number of failures reported by these labs is a total of three or less over five years, except for one lab reporting 10 failures. Another reported that several companies had dropped out of CRADA negotiations because there was a business need that had to be satisfied more quickly than the time it usually takes to execute a CRADA.
- Among the 16 labs answering about NF-WFOs, six (38%) noted at least one failed agreement, and the number of failures is five or less over a five year period, with one exception – one lab noted 15 failed agreements over the five years (a different lab from the one noting high CRADA failure rates above).

Reasons mentioned for failures of CRADA agreements are idiosyncratic, but for NF-WFOs, failure to execute is most often cited as a result of lengthy negotiations of terms and conditions rather than processing delays per se: [Survey responses]

CRADAs:

- **Foreign CRADAs needed DOE-Headquarters review** and the reviews were low on DOE’s priority so the Participant backed out. Negotiating the US Competitiveness, Indemnification, and Export Control clauses took a lot of back and forth negotiation between the Participant, the Commercialization Manager, and our Legal Department. [10 failed agreements]
- **Upper management** took too long to approve. [3 failed agreements]
- Market opportunity was missed due to **response delays by another laboratory** which co-owned the technology. [1 failed agreement]
- **Failure to reach timely agreement on terms and conditions with international partner.** [1 failed agreement]
- [zero reported failure agreements noted] We don’t track this number, but there are a handful of instances in which we had started work on a CRADA and the company dropped out because of the time involved. This may also happen occasionally during preliminary discussions with the technical center in which case the Technology Transfer Office may not be aware of it. There was no particular delay in these cases that I recall. It was simply the case that the **company had a business need that had to be satisfied more quickly than the overall process time would permit.**

NF-WFOs:

- Cycle time delays in each case can be summarized by identifying the key factors in delay:
 - **Terms and conditions** fail to be negotiated to both parties' satisfaction
 - Funds arrive and a key deliverable is due, yet there is a **delay in placing funds into a task** for spending (result of delays in contract modification process). [15 failed agreements]
- Generally if an agreement is not processed it is due to the **length of negotiations concerning the Ts & Cs**. [~ 5 failed agreements]
- Four instances: Large company indicated they could not provide **advanced funds**; Company went defunct; Company decided to pursue a different course of research; and Company made the economic decision not to pursue the work. [4 failed agreements]
- Acceptance [of] **terms and conditions**. [2-3 failed agreements]
- **Site Office approval delays**. [1 failed agreement]
- Unable to change Site Office opinion that the work represented "**direct comparative competition**." After a 133 day delay, the sponsor terminated discussions. NOTE: The Site Office has, to our minds, erred in its interpretation of the uniqueness / non-competition requirement. Several WFOs have been disapproved by our Site Office on this basis. [1 failed agreement]

Several respondents who did not report any failed agreements made comments as well. One reminds us that an executed agreement doesn't mean the partner is satisfied or even necessarily has a choice of the lab as a partner:

*Executing an agreement does not mean the CRADA Partner is satisfied. The perception / reality is that [our lab] / DOE / NNSA is **difficult to work** with but, since uniqueness is one of the requirements for Work for Others (WFO) activities, **[our lab] may be the only option** that meets the Partner's requirements. [Survey]*

Another respondent pointed out that cycle time delays per se are difficult to separate from the necessity to negotiate terms and conditions, which lengthens cycle times.

*CRADAs have failed to be executed not because of cycle time delays per se, but because of issues such as (i) Contractor unable to negotiate an **alternative net benefits statement** acceptable to DOE; (ii) Participant unable to secure **sufficient funding**; and (iii) DOE rejects CRADA based on work not being tied to **Laboratory mission**. This has fostered a reputation of [our lab] being difficult to work with, not agreeing to reasonable business terms, and not working at the speed of business. [Survey]*

2. Customer Complaints

The survey included a question on the parts of the agreement execution process participants and sponsors complain the most about, and similar themes arise. Complaints noted (along with some illustrative quotes):

- Inflexibility and / or length of negotiations related to terms and conditions

Certain CRADA terms tend to be sticking points, e.g., the government use license, the provisions which relate to software, governing law and others.

*Having to sign up to U.S. competitiveness, product liability, indemnity, and Participants not understanding how IP rights and ownership work in a CRADA (**they often think they should own / have rights in everything**)*

Product liability, export control, title to subject inventions, and disclaimer

Advance payments and indemnity terms. They also do not like march-in and government license in their inventions.

Challenging / Negotiating the IP, indemnification, and advance payment provisions. Of these three issues, advance payment is the most difficult for sponsors to accept.

Having to agree to indemnity, product liability, etc. and, in cases where federal funds are involved, IP ownership terms. Government rights in IP, data rights, facility license. Advance payment requirements are a big issue.

- Requirements for advance payment and flowdown issues

Requirement for Advance fund[ing]; some companies do not have sufficient funds to provide the required Advance Funds to the laboratory and many businesses, both small and large, are used to paying for the work upon delivery.

We receive complaints about the advance payment requirement, particularly from companies who are being funded by another entity (e.g., DARPA). They didn't expect to pay any of their own funds and don't like to be out of pocket while waiting to be paid by the funding organization on a deliverable basis.

Advance Payment. Nobody likes to pay before the work is done.

DOE WFO terms are problematic – Sponsor wants to use Sub award terms from their prime.

In addition, cycle times per se are also mentioned as a partner complaint, for example:

*The DOE review process: the time it takes to review, the kinds of additional documents that may be requested, and the time it takes the Contracting Officer to approve. **Once the Participant is ready to sign, we should not waste time.***

*Participants also complain about the time it takes to get an agreement in place. In part this is due to our approval process time and **in part is due to the fact that the approval process at their own organization is more difficult and time consuming since the agreement terms differ from those they would usually use.***

Some of our commercialization managers are slow to respond to participants.

V. Perceptions of Flexibility / Agreements Accepted Verbatim

Laboratory respondents were asked about the level of flexibility that exists to modify agreement terms and conditions – both from their own perspective and how they perceive partner and sponsor opinions on this subject. Site Office respondents were asked about how much flexibility they give to the laboratories. Flexibility was rated on a “1” to “10,” where “10” means completely flexible and “1” means not at all flexible. Data are summarized in the table below.

The more flexibility you can get, the more customer buy-in. Take it or leave it doesn't bring funding into the Laboratory. Sponsors feel DOE has a take it or leave it attitude, and they do. [Focus Group]

Not surprisingly, overall, laboratory and Site Office respondents do not perceive that the laboratories have much flexibility in modifying Ts & Cs in agreements. In fact, many laboratory respondents report that they manage the agreement process with inflexibility in mind, in order to explicitly avoid the extended cycle times associated with negotiations over specific Ts and Cs. (“We come out best just to indicate inflexibility to partners.”) They believe that partners’ perceptions about such flexibility are even lower. In addition, perceived flexibility in modifying Ts and Cs for NF-WFO agreements is lower than that for CRADAs, which is perhaps not surprising given the more restrictive nature of these agreements.

Site Office representatives tend to believe they give more flexibility to the laboratories in modifying terms and conditions than the laboratory representatives themselves believe they have.

From the responses to the follow-up question on reasons given to support their score on flexibility, it appears that higher perceived flexibility is associated with a good working relationship with all the parties involved in executing the agreement.

Table 18: Perceptions of Flexibility in Modifying Agreement Ts & Cs: CRADAs and NF-WFOs

1-10 Score (10=extremely flexible)	LABORATORY RESPONDENTS: How much flexibility would you say your lab / facility has in modifying the terms and conditions ...?	LABORATORY RESPONDENTS: How flexible in modifying agreements would your lab's / facility's <u>participants</u> / <u>sponsors</u> say you are?	SITE OFFICE RESPONDENTS: How much flexibility would you say your Site Office gives to your labs / facilities to modify the terms and conditions ...?
CRADAs:			
Average	4.8	3.5	5.3
Median	4.5	3	5
RANGE	2 to 9	1 to 7	1 to 9
(n)	(16)	(16)	(12)
NF-WFO Agreements:			
Average	4.3	3.2	4.5
Median	3.5	2.8	3.5
RANGE	1 to 8	1 to 8	1 to 9
(n)	(16)	(16)	(12 – one missing response)

A. CRADAs

On average, laboratory participants do not perceive that they are very flexible in modifying CRADA terms and conditions (average score is less than 5), and believe that their CRADA participants see them as being even less so (average score is 3.5). Site Office staff participating in this survey from 12 institutions, on average, feel they are more flexible (average score is 5.3, with fully 4 in 10 giving a score of 7 or higher).

As noted earlier, a number of laboratory participants say they actively manage the process to discourage changes to terms and conditions by telling the participant or sponsor that this will add to the time it takes to execute the agreement.

Table 19: Flexibility in Modifying CRADA Ts & Cs

Score	LABORATORY: How much flexibility would you say your lab / facility has in modifying the terms and conditions of a CRADA?	SITE OFFICE: How much flexibility would you say your <u>Site Office gives to your labs / facilities</u> to modify the terms and conditions of a CRADA?	LABORATORY: How flexible in modifying CRADA agreements would your lab's / facility's <u>CRADA participants</u> say you are?
10 ("Completely Flexible") or 9	6% (1)	8% (1)	0 (0)
8, 7	25% (4)	33% (4)	12% (2)
6, 5	19% (3)	25% (3)	19% (3)
4,3	25% (4)	8% (1)	31% (5)
2,1("Not at all flexible")	25% (4)	25% (3)	38% (6)
Average	4.8	5.3	3.5
Median	4.5	5	3
RANGE	2 to 9	1 to 9	1 to 7
(n)	(16)	(12)	(16)

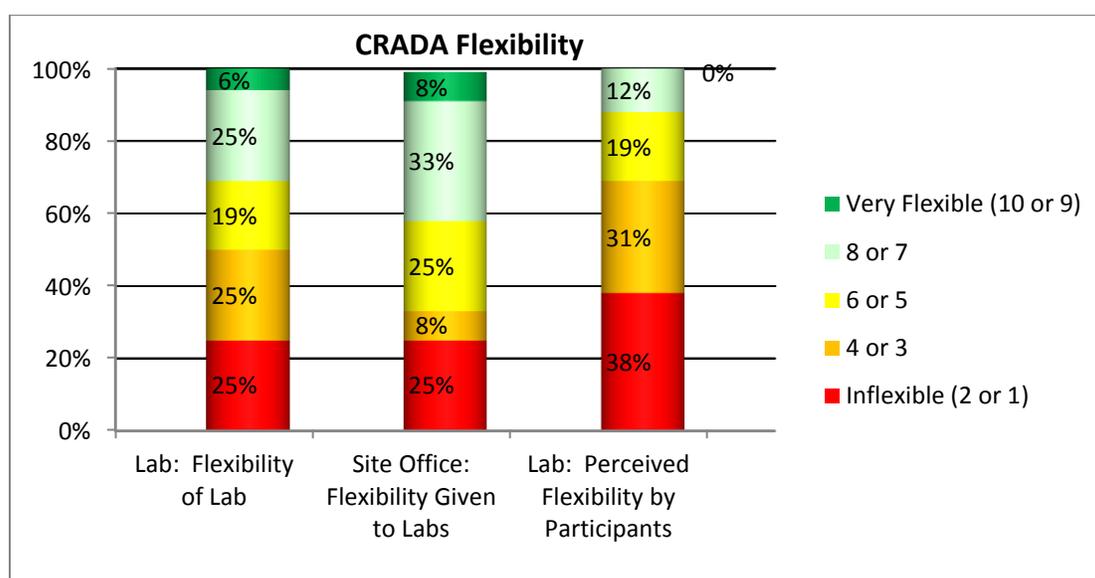


Figure 4: Perceived Flexibility (CRADAs)

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Selected comments on reasons for flexibility scores are shown below. Higher perceived and actual flexibility may be associated with a close and trusting working relationship between the laboratory and the Site Office and legal staff. Note also the comments about discouraging customers from making changes because of time delays.

Table 20: Reasons for Level of Flexibility (CRADAs), Selected Comments

How much flexibility would you say your lab / facility has in modifying the terms and conditions of a CRADA?

How flexible in modifying CRADA agreements would your lab's / facility's CRADA participants say you are?

LABS Score	<i>What reasons would you give to support your answer [flexibility score]?</i>
Laboratory Flexibility (CRADAs)	
9	<i>So long as we comply with the CRADA Manual and with Lab policies and procedures for putting a CRADA in place and work revisions with DOE Patent Counsel as may be required, we feel we have a great deal of flexibility in modifying terms and conditions of a CRADA.</i>
8	<i>I work closely with our DOE Site Office Patent Counsel and discuss changes to Ts & Cs along with alternatives to proposed language to come up with the best language that fits the situation. [The Site Office] gives me the flexibility I need to negotiate and when I have questions, [they are] are readily available to help resolve.</i>
5	<i>Although flexibility may be available, it is not desirable due to the added time for DOE approval of the language.</i>
3-4	<i>Our lab (Tech Transfer and Legal Counsel) discourage changes to CRADA Ts & Cs because of difficulty of and time delay in obtaining approval from both Contractor and NNSA attorneys.</i>
3	<i>The CRADA manual allows for some flexibility in the language. [The lab's] Business Development Executives have limited authority to modify terms and conditions. In most cases, through cooperation and collaboration, we ask for understanding on the part of the Participant and inform them that any significant changes may cause delays in obtaining approval for changes to the CRADA language.</i>
3	<i>Changes can be made at times, but getting concurrence on those changes is time consuming and tortuous. We come out best just to indicate inflexibility to partners.</i>
2	<i>DOE has approved a CRADA template that they don't want us to deviate from – even some alternative language from the very outdated manual is frowned upon.</i>
2	<i>Our CRADA terms have been negotiated between the DOE and the M&O contractor, and follow the terms of our M&O contract. Making changes would be very time consuming, and so far not necessary.</i>
Perceptions of Partners' Views of Flexibility (CRADAs)	
7	<i>I have not had a partner walk away because we couldn't resolve Ts & Cs.</i>
5	<i>[Our lab] strongly encourages Participants to accept the Model CRADA without revisions to avoid delay in negotiating changes. Participants are often frustrated over "take it or leave it" approach that DOE takes on the US Competitiveness clause.</i>
3	<i>We make efforts to communicate the inflexibility up front to avoid unrealistic expectations.</i>
2	<i>Efforts are made not to deviate from the standard language for expediency, continuity and consistency.</i>
1	<i>I advise them that any changes would be very time consuming, and that the terms of our CRADAs are fair to both parties. I generally walk them paragraph by paragraph through the CRADA document, which seems to address their issues.</i>

SITE OFFICE Score	<i>How much flexibility would you say your Site Office gives to your labs / facilities to modify the terms and conditions of a CRADA? What reason would you give to support your answer?</i>
9	<i>DOE provides the Modular CRADA which provides some flexibility. The contractor is free to suggest other changes subject to DOE approval.</i>
8	<i>The Site Office works very closely with the Laboratory and gives the Laboratory the flexibility it needs to negotiate CRADAs.</i>
8	<i>The lab has worked with the Site Office, legal, and the CO to have optional language, modify the JWS template, make changes to terms and conditions (with legal review), and have different CRADA models such as Umbrella CRADAs, Single Lab / Participant CRADAs, Multi-lab / multi-participant CRADAs, etc.</i>
8	<i>- Except for clauses based on statute (double underline in the CRADA Manual), the lab can negotiate any clause. The Site Office has approved a standard CRADA format that the Lab does not very often deviate from.</i>
7-8	<i>It is not uncommon for [the lab] to work with [the Site Office] to resolve potential issues or in most cases possible language variations to the Modular CRADA. This seems to help with the CRADA approval cycle. On the average, it [time savings] could be from one to seven calendar day(s).</i>
5	<i>We expect the Lab to use the Model Agreements at all times. If there has to be a deviation from the Model there should be very good reason to do so, and would require 4 [additional approvals?] - - (two Contracting Officers and Two Attorneys) to approve these deviations.</i>
5	<i>If the lab gives a reasonable explanation of the deviation to the Ts & Cs and work with our lawyers these issues are promptly resolved.</i>
5	<i>CRADA has many options to choose from. [The Lab] has standard terms and conditions approved by the Site Office. Only if [the Lab] modifies these standard terms does the Site Office get involved. This doesn't happen often in CRADAs.</i>
3	<i>Ts & Cs have been agreed upon upfront and [the lab] must stay within the bounds of regulations. However, the Lab must have some flexibility to make these state of the art projects successful.</i>
1	<i>We would forward any changes to legal counsels (general and intellectual) for review of the deviation and request their comments as to whether or not they find them acceptable.</i>

(Identifying information from most laboratories has been removed from responses.)

B. NF-WFO Agreements

Overall levels of perceived flexibility with NF-WFO agreements are lower as compared to CRADAs, although similar patterns are discerned in how labs, Sponsors, and Site Offices regard their own flexibility. Lab participants do not believe they have a great deal of flexibility with respect to NF-WFO agreements and believe that Sponsors would say they are even less flexible. The Site Office is somewhat more likely to believe there is more flexibility given to the labs than the labs themselves believe they do, similar to the pattern shown with CRADAs. (Selected comments on the reasons for their scores are shown on the next pages.)

Table 21: Flexibility in Modifying NF-WFO Ts & Cs

Score	LABORATORY RESPONDENTS: How much flexibility would you say your lab / facility has in modifying the terms and conditions of a NF-WFO?	SITE OFFICE RESPONDENTS: How much flexibility would you say your <u>Site Office gives to your labs / facilities</u> to modify the terms and conditions of a CRADA?	LABORATORY RESPONDENTS: How flexible in modifying NF-WFO agreements would your lab's / facility's NF-WFO sponsors say you are?
10 ("Completely Flexible") or 9	0 (0)	8% (1)	0 (0)
8, 7	31% (5)	25% (3)	12.5% (2)
6, 5	6% (1)	0 (0)	12.5% (2)
4,3	25% (4)	42% (5)	25% (4)
2,1("Not at all flexible")	38% (6)	25% (3)	50% (8)
Average	4.3	4.5	3.2
Median	3.5	3.5	2.8
RANGE	1 to 8	1 to 9	1 to 8
(n)	(16)	(12 – one missing response)	(16)

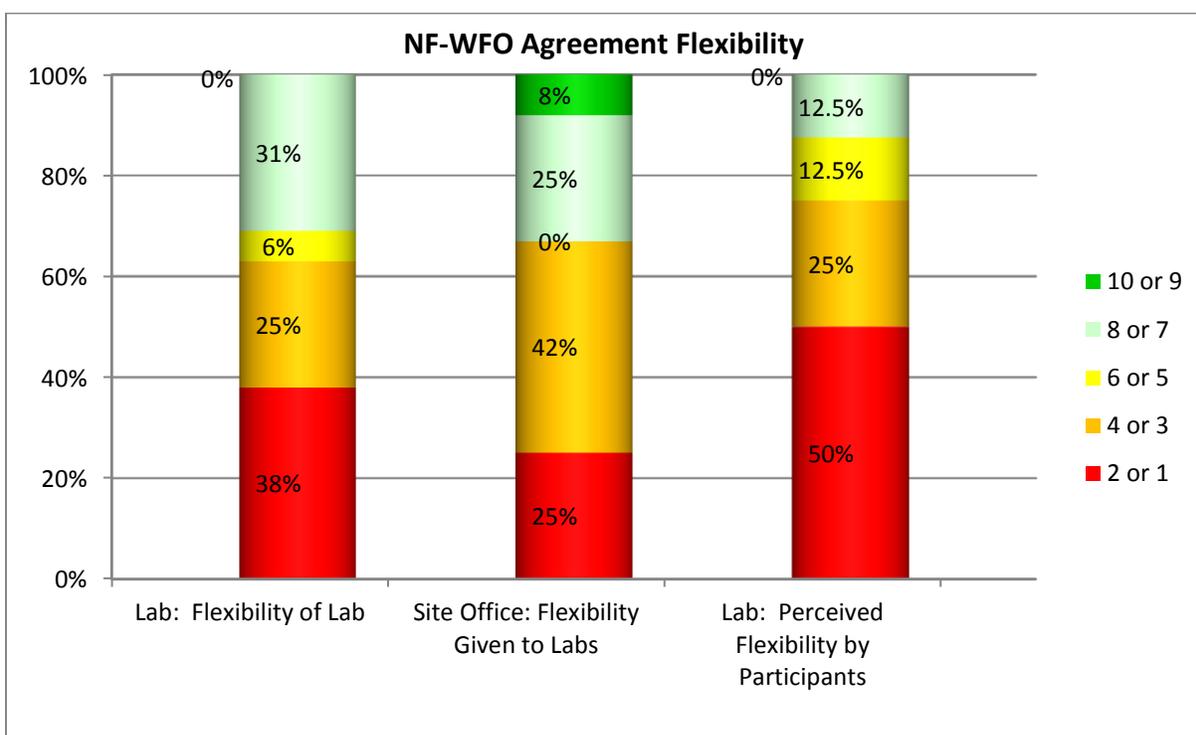


Figure 5: Perceived Flexibility (NF-WFO Agreements)

Table 22: Reasons for Level of Flexibility (NF-WFOs), Selected Comments

How much flexibility would you say your lab / facility has in modifying the terms and conditions of a NF-WFO?

How flexible in modifying agreements would your lab's / facility's NF-WFO sponsors say you are?

LABS Score	What reasons would you give to support your answer [flexibility score]?
Laboratory Flexibility (NF-WFOs)	
8	<i>A good working relationship with our Site Office.</i>
5	<i>Some flexibility but typically leads to protracted reviews on any substantive changes to the Ts & Cs.</i>
3	<i>We are obligated to use the approved templates from DOE. If changes are made they MUST be approved by DOE. Changing agreement templates is discouraged by many reviewers and often requires significant justifications and time.</i>
2	<i>We manage the NF WFO program to limit flexibility with terms, since those changes require additional review and approval of the lab and additional approval from DOE, which increases the cycle time for award.</i>
Perceptions of Partners' Views of Flexibility (NF-WFOs)	
8	<i>We make every effort to accommodate modifications as necessary to support sponsor's requirements (within the constraints of federal policy requirements). Periodically extensive explanation must be offered to non-federal sponsors to reinforce the boundaries of federal policy in this regard.</i>
7	<i>We have many repeat customers in the WFO area.</i>
5	<i>We strongly recommend that our customers do not change anything</i>
4	<i>We almost always insist on using "our" agreement, even though it's their money. Also, the usual suspects ... indemnification, product liability, and IP terms (in some cases).</i>
3	<i>We force them to take the DOE terms. They want to start with their terms. They do not like the advance payments, the indemnity and the IP complexity.</i>
3	<i>Sponsors, especially those who are engaging with a DOE Lab for the first time) do not understand that the WFO is a DOE-specified contract and that [the Lab] must negotiate language changes with two parties: the Sponsor and the patent counsel at the NNSA Service Center. Nor do participants understand that operating contracts, DOE orders, and statute limit our flexibility.</i>
2	<i>Feedback from NF sponsors indicates that while the ability to partner with DOE laboratories is an important priority, challenges in these relationships are of significant concern. Specifically, the take it or leave it attitude of some DOE facilities with regard to their willingness to modify the terms of the standard DOE Work for Others agreements mandated by DOE.</i>
1	<i>Based on the negotiation patterns we use with our Sponsors, the feedback provided by Sponsors is that we do not encourage changing terms that DOE has prescribed.</i>
SITE OFFICE Score	How much flexibility would you say your Site Office gives to your labs / facilities to modify the terms and conditions of a NF-WFO agreement? What reason would you give to support your answer?
9	<i>DOE provides the standard WFO agreement which provides flexibility through optional clauses. The contractor is free to suggest other language changes subject to DOE approval.</i>
8	<i>A good working relationship between the Site Office and the Laboratory exists.</i>
4	<i>SO has the personnel to evaluate change requests by the sponsor or the contractor; however, the Site Office has security and facility limitation[s] that will not be waived.</i>
2	<i>[The Site Office] does not encourage changes to the DOE-prescribed terms and conditions.</i>

C. Agreements Accepted Verbatim

Laboratory respondents were asked to estimate the number of new FY09 agreements in which their lab's standard terms and conditions were accepted verbatim, without any modifications. It appears that many labs do not routinely track such figures, and we believe that most data reported below is loosely estimated and subject to significant variations from year to year. The number of "verbatim agreements," along with the computed percentage of the total, are shown in the table below.

Across the labs, 33% of CRADAs are accepted verbatim, on average, ranging from a low of 0% to a high of 75%. (Six of 15 labs executing CRADAs in FY09 report that no agreements were accepted verbatim. These labs are primarily those that executed a small number of new CRADAs in FY09.) For WFOs, nearly twice as many agreements are accepted verbatim on average (58%).

The table below also shows the percentage of agreements with brand new partners – we speculated that this would be associated in some way with the percentage of agreements accepted verbatim. (For example, one hypothesis was that a previous partner may be more likely to accept verbatim terms than a new partner.) However, the percentage of new partners has virtually no direct statistical correlation with the percentage of agreements accepted verbatim, at least for these data collected for FY09.

Table 23: FY09 Agreements Where Terms and Conditions are Accepted Verbatim

Lab / Facility	FY09 Total New Agreements	# FY09 New Agreements, Accepted Verbatim	Agreements Accepted Verbatim (%)	Agreements w/ Brand New Partners (%)
CRADAs:				
SNL **	20	15	75%	25%
LBNL	7	5	71%	86%
BNL	6	4	67%	17%
NREL *	49	32	65%	92%
LLNL	8	5	63%	100%
LANL	21	10	48%	43%
PNNL	14	5	36%	57%
ANL	4	1 ("30%")	30%	50%
INL	10	1	10%	60%
Ames	1	NONE	0%	100%
NETL	6	NONE	0%	83%
ORNL	10	NONE	0%	40%
SRNL	4	NONE	0%	100%
TJL	7	NONE	0%	57%
Y-12	1	NONE	0%	100%
NF-WFOs:				
Pantex	10	10	100%	10%
PPPL	1	1	100%	0%
INL	48	39	81%	17%
PNNL	25	20	80%	60%
NREL	55	40	73%	60%
SNL **	83	60	72%	41%
BNL	18	12	67%	50%
LLNL	127	64 ("half")	50%	9%
SRNL	8	4 ("50%")	50%	50%
ORNL	88	40 (est.)	45%	34%
LANL	58	20 (est.)	34%	21%
LBNL	161	48	30%	24%

Labs are ordered from highest to lowest percentage of agreements accepted verbatim. Those with missing data are not shown in the table. * NREL reports that at least half of the CRADAs with non-standard terms involved only "very minor" changes. ** SNL interpreted "verbatim" to include alternative language previously approved by the Site Office. (Accepted alternative language is collected in a central repository by the lab.) In addition, many partners are strategic and "accustomed to the process."

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VI. Agreement Execution Cycle Times

The time it takes for any given laboratory to process a CRADA or a NF-WFO agreement (calendar days from receipt of initial proposal or statement of work from the PI to the time work can begin) is defined as the cycle time in calendar days – the clock starts when a proposal or SOW is received by the Tech Transfer Office and ends when work can begin.

The greatest source of variability in this process is negotiation with sponsors and partners, which is, to a large extent, out of the control of the laboratory. It is, however, a function of the differences in the way the government conducts business in contrast to commercial and other non-federal entities. This difference often creates sticking points in negotiations with the outside partner. The difficulty of these negotiations may be related to the extent to which any given partner is “socialized” to working with the government, and familiarity with facets of these agreements that simply cannot be changed, or can only be changed after intense legal negotiations.

You have to strike while the iron is hot. The longer the [execution process time], the greater the possibility that the sponsor or partner will lose interest, change people, or change project direction. [Focus Group]

We haven't had a partner who wanted to work with us and we wanted to work with that we didn't find a way. Reducing time is good, but these things also act as a filter to getting a partner who is committed. We need to know that there is continuity of funding and that partner is committed to the laboratory. [Focus Group]

Our reputation is that we don't move fast enough, both among big companies and among our own PIs. [Focus Group]

Internal processes, both on the part of the partner and on the part of the laboratory, also contribute to cycle times. In addition, it can be difficult and time consuming for private sector companies to reach agreement on complex issues like intellectual property rights and indemnity provisions, even if the additional complications of government-related requirements are not present.

A. Overall Cycle Times

1. CRADAs and NF-WFO Agreements

To obtain cycle time estimates that are comparable across the DOE complex of laboratories and facilities, laboratory respondents were presented with two different models of process steps (based on our reading of the information supplied in the preliminary survey). Respondents were asked to select which model best fit their lab's own process, and then to specify the cycle times in calendar days for each time period. One emphasis here was to clearly define when the clock starts and stops (see charts).

Despite concerted efforts to provide methods of response that would allow us to reliably capture uniform data across the entire complex that could be compared reliably, a number of labs had difficulties fitting their processes into the models. Respondents often heavily caveated their replies and sometimes supplied wide ranges for their estimates (e.g., “52-192” for the total cycle time with the Ts & Cs negotiations step creating the necessity for this range); or provided incomplete data (some of which we were able to fill in during the groups, but not all anomalies were apparent until the data had been completely analyzed). Some labs have solid data about

cycle times, others are estimating. The data collected for this study can be characterized as indicating general trends and should be considered qualitative (not quantitative). The numbers that we have most confidence in are total cycle times, and we will start with these first.

Total Reported Cycle Time by Laboratory: Results for each laboratory are shown in the table below, along with the number of agreements processed by the lab.

Table 24: Total Reported Cycle Time by Laboratory ¹⁵

Lab	# FY09 New CRADAs	CRADA Cycle Time* (midpoint)**	# FY09 New NF-WFOs	NF-WFO Cycle Time* (midpoint)**
Ames	1	141	1	69
ANL	4	137	61	60
BNL	6	114	18	117
INL	10	105	48	59.5
LANL	21	63	58	78
LBNL ¹⁶	7	122	161	135
LLNL	8	46	127	77
NETL	6	100	n/a	n/a
NREL	49	78	55	67
ORNL	10	161	88	103
Pantex	n/a	n/a	10	73
PNNL	14	101	25	60
SNL	20	105.1	83	80
SRNL	4	180	8	52
TJL	7	100	2	100
Y12	1	90	n/a	n/a

* Information requested was calendar days.

** If a range was specified, a midpoint was used.

Cycle times were defined in the questionnaire as starting when the SOW or proposal is sent to the tech transfer agreement coordinator, and ending when the agreement executes and work can begin. Respondents were asked to supply calendar days but as we discovered in the focus group discussions, sometimes did not do so and responses had to be adjusted. Cycle time estimates for Site Offices represent only the time required for formal approval of the agreements and not any time prior to formal transmittal of the agreement from the laboratory to the Site Office.

¹⁵ Cycle time totals were in some cases corrected for obvious adding mistakes (e.g., Ames, LBNL). In several cases (PNNL, SNL, LANL), questionnaire data were clarified during discussion sessions.

For the cycle time analysis that follows: Y12 reported that most of their agreements are Materials and Services Order Form-type agreements and a total cycle time for NF-WFO of six days, and was excluded as an outlier; PPPL reported no CRADAs for FY09, and 20 days for a total cycle time for NF-WFOs, which we excluded as outliers.

¹⁶ LBNL noted that cycle times are long because of a large number of agreements involving universities and federal sub-awards in which partner signature and advance payment delays are particularly problematic.

Total cycle times are shown below (average calendar days, median calendar days, range and standard deviation). Three different methods of calculating a total for individual labs are shown for CRADAs, since CRADAs were more subject to reports of ranges of time than were NF-WFOs. When a laboratory reported a range, we used the low end as the total (best case), the high end as the total (worst case), and the midpoint of the range (midpoint method). Standard deviations are quite large, reflecting the wide spread of days reported.

For CRADAs, total cycle time average roughly 110 days (median = 105 days) or somewhere between 3½ and 4 months; averages for best case and worst case range from about 103 to 114 days. Reported CRADA cycle times by individual lab range from a low of 46 to a high of 192 calendar days. For NF-WFO agreements, the average and median total cycle times are 81 and 75 days, respectively, or 2½ to 3 months, but range by individual lab from a low of 52 days to a high of 135 days.

Table 25: Total Cycle Time (Averages)

Total Cycle Time (calendar days)	Average per lab	Median	Range	St. Dev.
CRADAs* (n=15 labs)				
Best Case	103	101	46 to 180	40
Worst Case	114	105	46 to 192	42
Using the Midpoint of Ranges Method	110	105	46 to 180	35.5
NF-WFOs* (n=14 labs)				
	81	75	52 to 135	24.3

* One lab omitted for CRADAs; two omitted for NF-WFO agreements – in both cases, the cycle time numbers were so low as to be suspect and were not included in this analysis.

The number of labs with cycle times in each range are shown in the figure below:

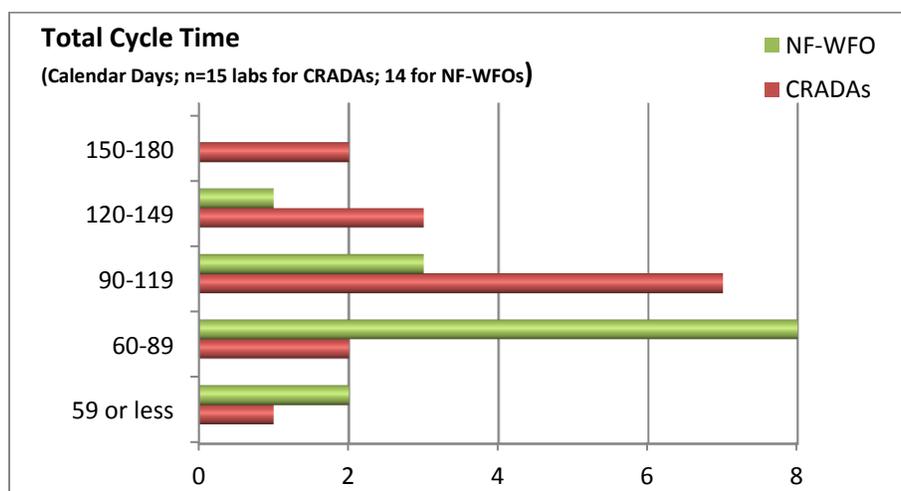


Figure 6: Cycle Times – Number of Labs Executing Agreements within Time Ranges

Cycle Time Correlations: The relationship (correlation) between total cycle times and the total number of newly-executed agreements in FY09 as well as the percentage of those agreements accepted verbatim was examined. Initially, it was speculated that both a higher volume of transactions and a higher volume of agreements accepted verbatim may be associated with higher efficiencies (shorter cycle times). The results of this analysis are discussed below.

There is a weak association between the sheer number of agreements and cycle times, but the pattern is different for CRADAs and NF-WFO agreements:

- For CRADAs, average cycle times have some tendency to be higher among those with fewer numbers of agreements.
- For NF-WFOs, the opposite pattern appears – higher volume tends to be associated with longer cycle times, but this is primarily because of LBNL, which reported the highest overall cycle time. This relationship essentially washes out, however, when LBNL is removed from the analysis. (LBNL reported the highest number of executed NF-WFO agreements, but also had a relatively long reported cycle time, which tends to skew the results. LBNL's cycle time is lengthy because this lab works with many entities using sub-awards for the WFO work, and the average time required for obtaining sponsor signature and advance payment are particularly lengthy.)

Table 26: Cycle Times and Number of Agreements in FY09

Cycle Times	7 or fewer CRADAs	8 to 49 CRADAs	LT 80 NF-WFOs	80 or more NF-WFOs
<i>(n of labs)</i>	<i>(7)</i>	<i>(8)</i>	<i>(10)</i>	<i>(4)</i>
Mean	123	94	74	99
Median	118	101	68	91.5
Standard Deviation	29.3	37.2	20.3	26.8

Pearson's correlation for CRADAs = -0.42; for NF-WFOs = +0.55

No firm conclusions can be drawn from the survey as to the reasons for these correlations. We speculate that with CRADAs, high volumes are associated with certain efficiencies related to experience (and perhaps with automated processing).

There is also a weak negative association between the percentage of agreements accepted verbatim and total cycle time. That is, the more agreements with non-standard terms and conditions, the longer the average cycle time. This is sensible and in line with respondents' perceptions of the importance of this factor.

Table 27: Cycle Times and Percentage of Agreements Accepted Verbatim

Cycle Times	CRADAs		NF-WFOs	
	~50% + Accepted Verbatim	LT ~50%	70%+ Accepted Verbatim	LT 70%
<i>(n of labs)</i>	<i>(6)</i>	<i>(8)</i>	<i>(5)</i>	<i>(6)</i>
Mean	88	126	68	94
Median	92	105	67	91
Standard Deviation	30.3	33.4	8.7	30.3

Pearson's correlation for CRADAs = -0.49 ; for NF-WFOs = -0.48

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Again, it must be cautioned that these relationships are weak – the variation around these measures of central tendency is quite large, and association does not necessarily indicate causality.

2. Cycle Times for the Average Transaction

Weighting cycle times by the number of new FY09 agreements processed provides a measure of the time it takes for any given agreement, on average, or the cycle time for the average transaction. The number of agreements was multiplied by the average total cycle time at each laboratory; the sum of these was then divided by the total number of agreements to arrive at the average per transaction. Thus, those laboratories that conduct more agreements are weighted more heavily in the calculation of the overall average.

Table 28: Approximate Average Cycle Time per Transaction

(calendar days)

	CRADAs	NF-WFOs
Average transaction cycle time	95	89
Average without laboratory conducting the greatest number of agreements*	103	78

** This row removes NREL transactions from the average for CRADAs, and removes LBNL transactions from the average for NF-WFOs.*

Cycle time for an “average” CRADA across the DOE complex computes to roughly **95** calendar days over the ~170 newly-executed CRADAs in FY09. This number is significantly lower than the average laboratory cycle time because the lab with the highest number of CRADAs (NREL) also has one of the lowest reported average CRADA cycle times. Without NREL’s CRADAs in the mix, the average calendar days per transaction increases to about **103** days.

Cycle time for an “average” NF-WFO agreement across the complex averages roughly **89** calendar days across the >750 NF-WFOs reported in FY09. This number is higher than the average lab cycle time, primarily because of LBNL, which has the longest average cycle time and the greatest number of NF-WFO agreements. LBNL works with many entities using sub-awards for the WFO work, and sponsor signature and advance payment delays are particularly problematic. Without LBNL in the mix, the average calendar days per NF-WFO transaction drops to roughly **78** days.

It should be noted again that these averages are based on numbers with enormous variation.

Calculating averages for particular steps in the agreement process is more complicated, given the variation the data provided, that steps may be performed concurrently and that steps may overlap. In the next section, we show median responses for each step, by version.

B. Steps in the CRADA Execution Process

For CRADAs, the two versions of process steps are shown below. Respondents were asked to choose the model closest to their own lab's process, and then to report the cycle time required for that step.

Most of the labs participating in this survey (13 of 16) chose Version 1 as being closest to their own process; three labs chose Version 2.¹⁷

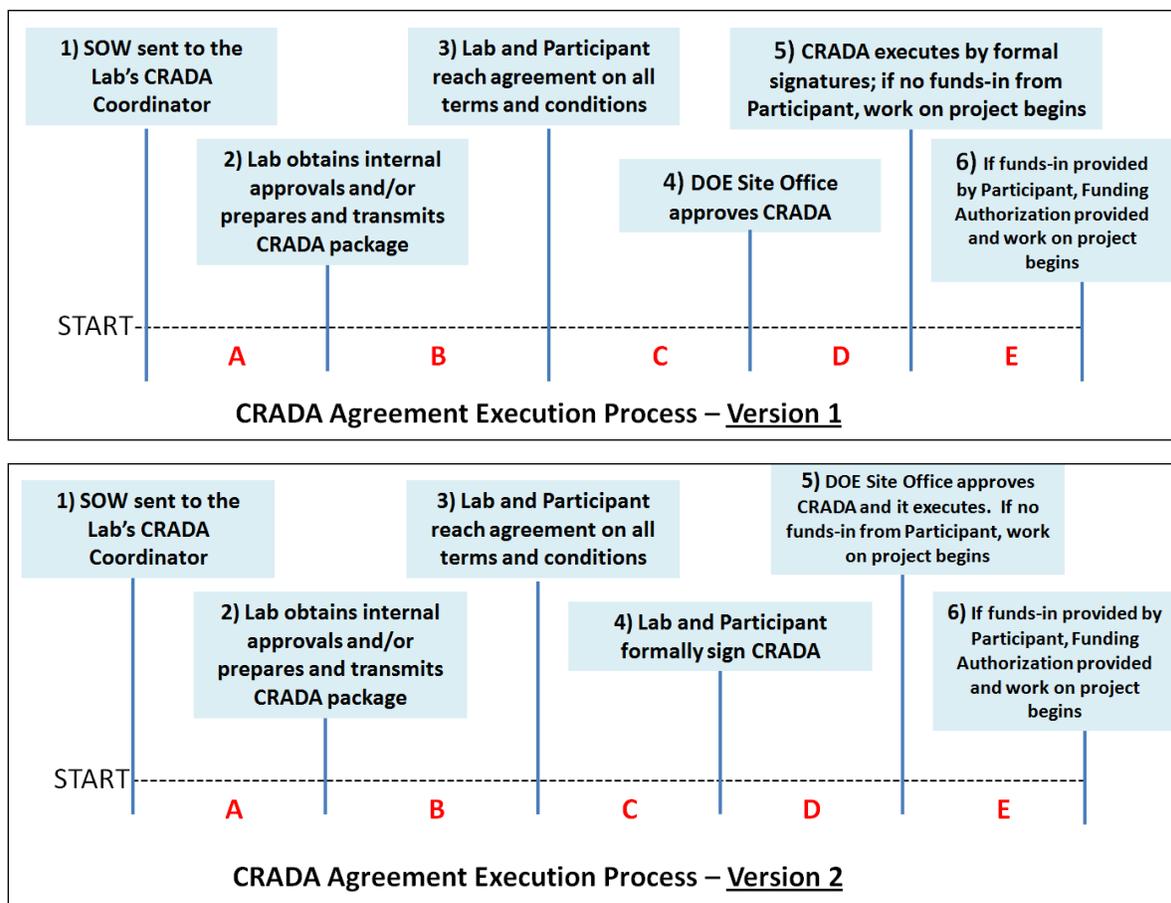


Figure 7: CRADA Process Step Models Used in the Survey

¹⁷ One lab reported that their process was vastly different, but used Version 1 to record cycle times.

The raw averages and medians for each step, by version, are shown below. The totals shown in the far right column of the table are based on the total cycle time estimates reported by respondents, and in some cases do not equal the sum of the estimates for the various steps as reported by respondents. Here, we make no attempt to force the sum of days in each step to add to the total. In both cases, reaching an agreement on terms and conditions is the step that takes the longest in both versions.

**Table 29: Cycle Times for CRADA Steps
(raw averages and medians)**

Model	Step A	Step B	Step C	Step D	Step E	Total
Version 1 (n=12)	Internal Approvals	Agreement on Ts & Cs	Site Office Approval	Executes by formal signatures	If funds in, Funding Authorization provided	<i>(midpoint method)</i>
Mean	20	46.5	18	11	14.5	108
Median	19.5	30	12.5	8	13.5	105
Version 2 (n=3)	Internal Approvals	Agreement on Ts & Cs	Formally sign CRADAs	Site Office Approval	If funds in, Funding Authorization provided	
Mean	8	60	15	12	19	114
Median	7	45	10	14	21	101
Both Versions (roughly equivalent steps combined) (n=15)	Internal Approvals	Agreement on Ts & Cs	Site Office Approval (V1-C; V2-D)	Executes by formal signatures (V1-D; V2-C)	If funds in, Funding Authorization provided	
Mean	17.7	49.2	16.9	12.0	15.3	110
Median	15	31.2	14	10	15	105

In order to get a sense of how the overall system functions, we normalized the cycle times for steps such that they summed to the total reported cycle time (as necessary), took the averages and computed their percentage of the average for the total, and then applied these percentages to the median for the total. (Here, median was used because it is less subject to fluctuations from extremes.) Cumulative times for steps are shown in the figure below.

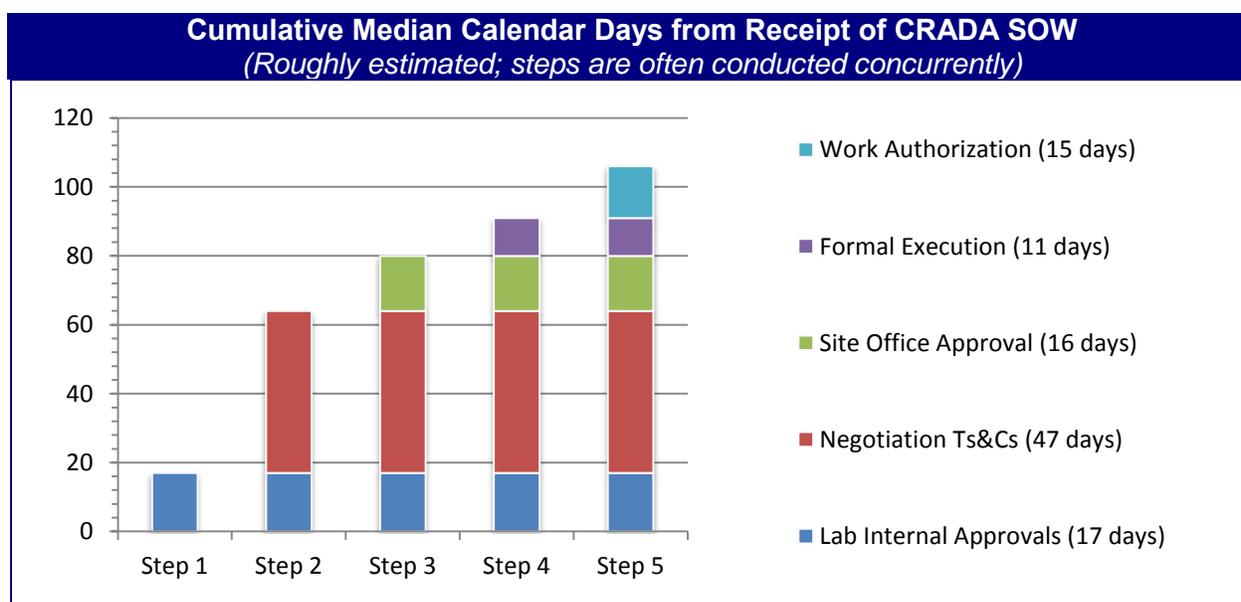


Figure 8: Cumulative Median Calendar Days from Receipt of CRADA SOW

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C. NF-WFO Agreements

For NF-WFO agreements, the two versions of process steps are shown below, along with the labs / facilities who said that the process comes closest to their own. Six of the labs chose Version 1 as closest to their own process steps; 10 chose Version 2 – intended to reflect concurrent Site Office and Sponsor approvals. (Here, two labs, one from each version, were omitted due to very low estimates of cycle times.)

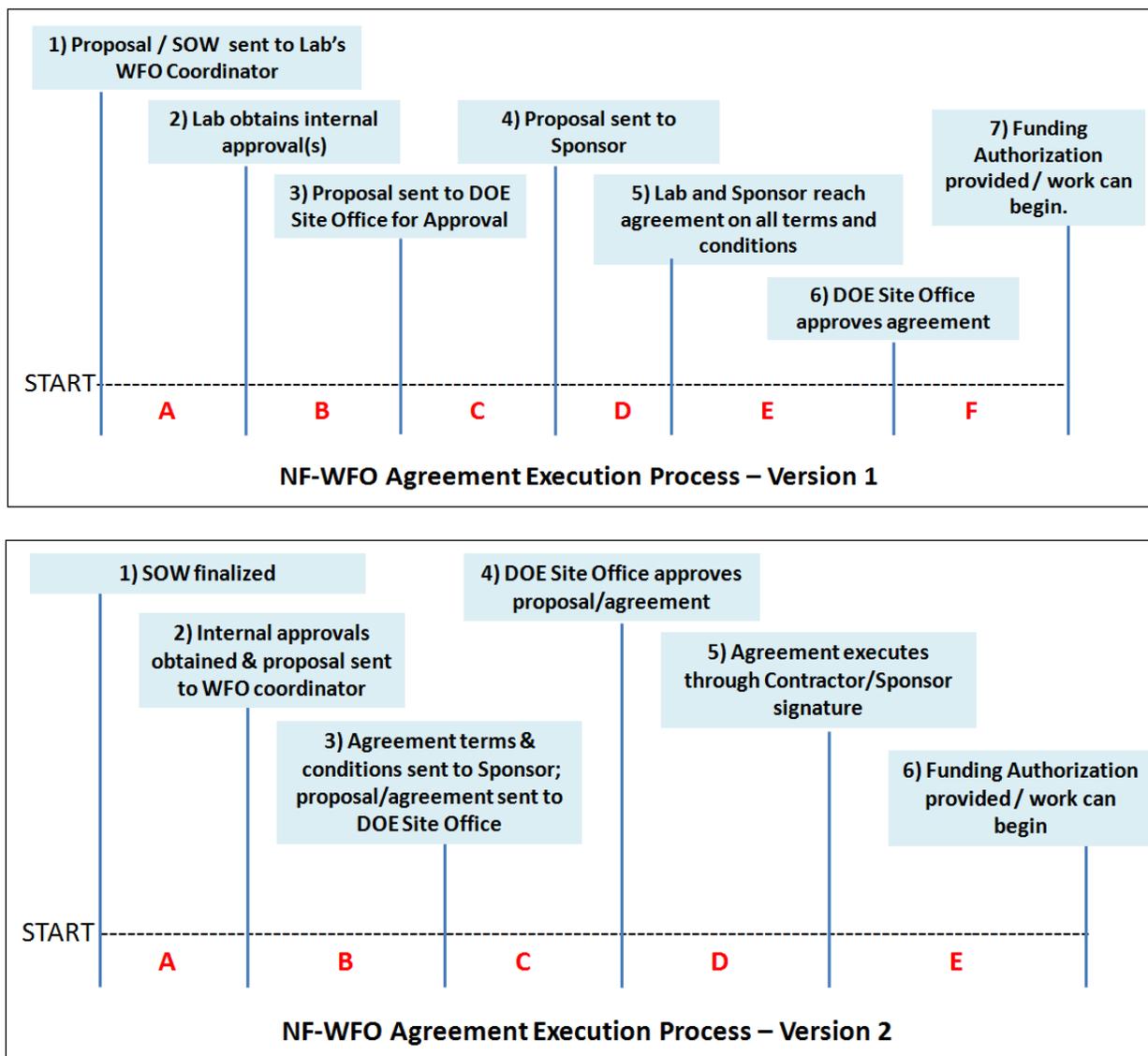


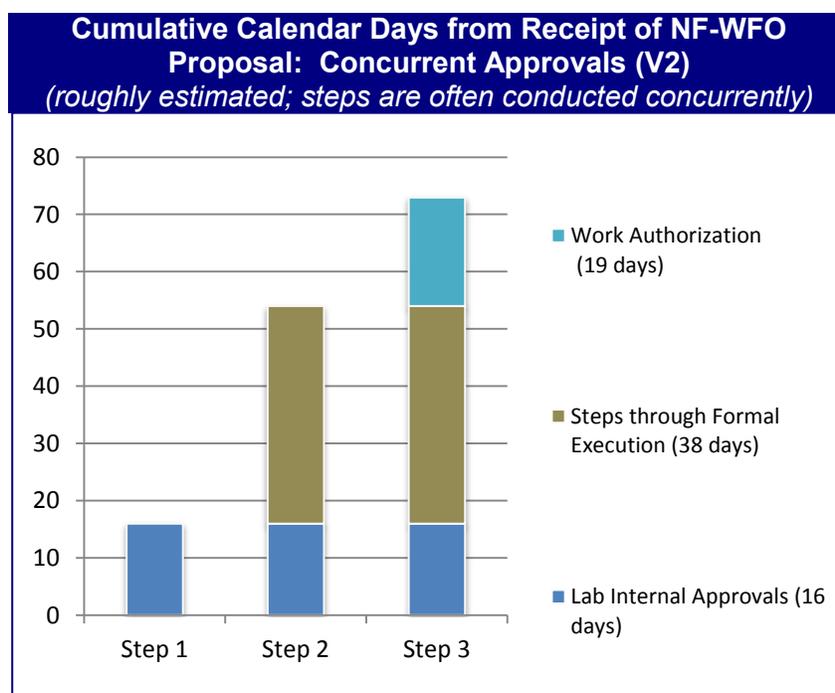
Figure 9: NF-WFO Agreement Process Step Models Used in the Survey

The raw averages and medians for each step, by version, are shown below. Again, we make no attempt to force the sum of days in each step to add to the total, and the totals shown in the far right column represent the total cycle times reported by respondents and not the sum of the steps.

**Table 30: Cycle Times for NF-WFO Steps
(raw averages and medians)**

Model	Step A	Step B	Step C	Step D	Step E	Step F	Total
Version 1 (n=5)	Internal Approvals	Proposal sent to Site Office	Proposal sent to Sponsor	Lab and Sponsor reach agreement on Ts and Cs	Site Office Approval	Funding Authorization provided	
Mean	10.5	4.3	14	32.6	14	15.5	85
Median	8.3	2	14	30	14	17.5	78
Version 2 (n=9)	Internal Approvals	Ts & Cs sent to Site Office & Sponsor	Site Office Approval	Agreement Executes Through Signatures	Funding Authorization	N/A	
Mean	9	8	17	24	21	N/A	78
Median	7	6	21	14	21	N/A	73

For Version 2 (concurrent approvals), as we did with CRADAs, we normalized the cycle times for steps such that they summed to the total cycle time (as necessary), took the averages and computed their percentage of the average for the total, and then applied these percentages to the median for the total (the median was used because it is less subject to fluctuations from extremes). Cumulative times for steps are shown in the figure below. (Segments represent Steps A+B, Steps C+D, and Step E.)



Non-concurrent Site Office approval (Version 1) adds roughly 5 to 7 days to cycle times to that shown above.

Figure 10: Cumulative Median Calendar Days from Receipt of NF-WFO Proposal (Concurrent Approvals)

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D. Site Office Approval Times

Site Office staff was asked to estimate the cycle times for their review and approval. For CRADAs, if the JWS was approved separately, that time was added to the total, as well as any other approvals from other DOE personnel, with the exception of HQ review, which will be discussed later. For NF-WFOs, time to approve the funding authorization was added to the total.

Based on estimates by the Site Office staff (which often, but not always, are close or an exact match to lab estimates), the average times for Site Office approvals are shown below. Because some respondents offered ranges, central tendencies are shown for both the best and worst case scenarios.

Table 31: Site Office Review and Approval Times
(as reported in Site Office surveys)

Site Office	Mean	Median	Range	Standard Dev.
CRADAs (n=12)				
Best Case	12	12.5	3 to 20.5	6.4
Midpoint	12	12.5		6.1
Worst Case	13	14		6.0
NF-WFOs* (n=13)				
Best Case	13	11	4 to 40	9.5
Midpoint	14	12		9.8
Worst Case	16	12		11.3

* One Site Office was an outlier, reporting 20 days to approve the NF-WFO agreement plus 20 days for funding authorization. Several responses to Site Office survey data were amended based on follow ups and discussion when the laboratory and Site Office estimates varied significantly. For example, one lab representative mentioned that the clock is turned off by the Site Office when questions are being asked back and forth to resolve an issue.

Site Office approval times specified by the respondents to the Site Office questionnaires were generally consistent with laboratory estimates for this time period, although when they were not, they were generally lower, as estimated by the Site Office respondents. Some of this, we believe, may have been attributable to responses that were actually in work days, and not calendar days.

Observation: It is interesting to note that the reported average cycle times for Site Office review and approval are not particularly lengthy. However, there are many indications that significant time and effort on the part of the laboratory are devoted to “preparing” the agreement package to minimize objections and thus keep the Site Office review and approval time to a minimum. In other words, **significant time is spent by the laboratory in preparing for the Site Office review to address and dispel any potential objections.** Related and equally important is that there are many interactions between the laboratories and Site Offices that occur prior to the formal Site Office approval process that are not captured in the cycle time estimates above.

If the Site Office is involved in reviewing the JWS (Joint Work Statement) separately from the CRADA agreement, Site Office approval cycle times may increase by an average of 9 to 11 days or so (depending on the central tendency measure used), as reported by Site Office personnel.

Table 32: Site Office Review and Approval Times, JWS Reviews

	JWS Reviewed Together w/ Agreement (n = 8)		JWS Reviewed Separately (n = 4)	
	Best Case	Worst Case		
Average	8.88	10.00	Average	17.75
Median	8.5	12	Median	20
Range	3 to 15	3 to 15	Range	11 to 20.5
Standard deviation	5.06	4.96	Stand dev.	4.5

E. DOE HQ Approval Times

DOE HQ approval times were not directly addressed in the survey of laboratory participants, but emerged as a clear sore point vis-à-vis cycle times for a number of the respondents (e.g., see right).

Although DOE HQ approval time was not addressed directly in the laboratory surveys, participants discussed this “pain point” in detail in the focus groups as a process that can “take months.” One lab notes that they have recently tried to become proactive about involving HQ early in the process to lessen this factor’s impact on cycle times. Another mentioned that reviews of foreign sponsors can take up to two months, but that was reduced this year to one to two weeks, ever since they spoke to someone in HQ about it.

HQ review of foreign customers is the most wasteful of time. It takes at least 30 days and can be as much as 60 to 90 days – this is truly wasteful. Nothing has ever been turned down. Maybe HQ should put out a list of companies we can’t work for – we don’t know exactly what they are looking for. The Office of International Affairs – they are always on travel. [Focus Group]

... throw it out the window if anything has to go to DC. ... If speed is important, then delegate decisions from DC to the local Site Office. [Focus Group]

Site Office respondents were asked in their surveys if they had ever had experience sending a CRADA or NF-WFO agreement to HQ – four offices replied “yes” for CRADAs and nine replied “yes” for NF-WFOs. Their comments on the reasons and number of days required for approvals are shown in the tables below. Clearly, the HQ approval time can be quite lengthy, is highly variable, and depends on the reason the approval is required, according to these estimates by the Site Offices. Foreign entity participation appears to be what can cause the most lengthy delays, with approvals required by DOE’s Office of International Science and Technology Cooperation (known as “P-31” and part of DOE’s Office of Policy and International Affairs).¹⁸

¹⁸ The Office of International Science and Technology Cooperation (known as P-31) is “an organization responsible for implementing Administration policy for the overall international science and technology activities of the Department as well as overseeing the development and negotiation of DOE international science and technology cooperation agreements throughout the world.” More detail is available at <http://www.pi.energy.gov/organization.htm>, and a list of subject matter experts is available at http://www.pi.energy.gov/pi_experts.htm.

Table 33: HQ Approvals (Reasons and Review / Approval Times, Site Office Respondents)

SITE OFFICES: Reason sent to HQ and days required for review / approval
<p>CRADAs: [A CRADA] being funded by the Office of FreedomCAR and Vehicle Technologies, Automotive Lightweighting Materials Program: This project fell under the "FreedomCAR, Hydrogen Fuel, and 21st Century Truck Initiatives," and therefore needed to be reviewed by the Program Office to determine whether any performance data should be exempted from being classified as Protected CRADA Information.</p> <p>Days required for review / approval: 4-8 weeks</p> <p>NF-WFOs: If the sponsor is foreign, then DOE-HQ [Office] of International Policy [must] review / approve first.</p> <p>Days required for review / approval: 2 weeks to 3 months</p>
<p>CRADAs: NOTE: Our Site Office has ... sent JWS's to HQ for review and approval for the following reasons: 1. Certain Work for Others or CRADA projects involving hydrogen powered vehicles, including fuel cell, hydrogen production, delivery, storage and infrastructure technologies, sent to the DOE HQ Vehicle Technologies program office (required by memo from the Assistant General Counsel for Technology Transfer and Intellectual Property). 2. CRADAs funded by EERE. 3. Alternative benefits to U.S. manufacturing requirements requiring program review. 4. Foreign participation</p> <p>NF-WFOs: • Intelligence related work not processed through the HQ intelligence office • Foreign funded work • Work that involves a space nuclear reactor, non-commercial power reactor or radioisotope power source projects • Projects involving human terrain mapping • Certain Work for Others or CRADA projects involving hydrogen powered vehicles, including fuel cell, hydrogen production, delivery, storage and infrastructure technologies, sent to the DOE HQ FreedomCar program office. • Projects that involve nuclear non-proliferation detection technologies</p> <p>Days required for review / approval: [same response for both types of agreements] 11 – but this depends on the reason for the HQ review. Usually the time is one week or less. One exception in past years has been the review required for foreign participation sent to the DOE HQ Office of Int'l Science and Technology Cooperation. These reviews have often taken several weeks or more.</p>
<p>CRADAs: Foreign participant with CRADA.</p> <p>Days required for review / approval: 14 to 20.</p> <p>NF-WFOs: DOE O 481.1C, Paragraph 4.I requires review and approval by the Office of International Science and Technology Cooperation. This usually takes 30 days, but it is not <u>unusual for it to take up to 60 days.</u></p> <p>In my opinion, this is an unnecessary review step and the DOE Order should be revised to remove the requirement. Field Offices should just have to notify the Office of International Science and Technology Cooperation vs. submit for review. They never have anything substantive to add to the review. They are simply an obstacle to streamlining the process.</p> <p>Days required for review / approval: 30 to 60</p>
<p>CRADAs: A copy of the CRADA agreement and a completed DOE / HQ Notification of a CRADA w/Foreign Company form are sent to General Counsel, HQs for their review / information. This information is also sent to Patent Counsel at Service Center and to NA121.4, also for review / information.</p> <p>Days required for review / approval: Depends – General Counsel, HQs, and Patent Counsel, Service Center, work together and SSO is notified by Patent Counsel at the Service Center immediately if there are any issues.</p> <p>NF-WFOs: All agreements with foreign involvement are sent to HQs.</p> <p>Days required for review/approval: 31</p>
<p>NF-WFOs: Review of any proposal from a foreign sponsor is required from the Office of Policy and International Affairs – PI-31 under DOE O 481.1C.</p> <p>Days required for review / approval: Note: The process to obtain the required approval by PI-31 is very lengthy and we often receive many complaints from the Laboratory and sponsors. It negatively impacts receipt of funding and agreement execution date.</p>
<p>NF-WFOs: There were security issues and restrictions associated with the item requested that required special approval.</p> <p>Days required for review / approval: 45 to 180</p>

SITE OFFICES: Reason sent to HQ and days required for review / approval
<p>NF-WFOs: International Agreements. Days required for review / approval: 40-60</p>
<p>NF-WFOs: Any foreign sponsored WFO requires approval from DOE-HQ Office of International Cooperative Activities. Days required for review / approval: 28</p>
<p>NF-WFOs: • Foreign sponsor • Nuclear counterterrorism • Space nuclear reactor • Improvised nuclear device • Non-traditional agents. Days required for review / approval: 3-30</p>

F. Optimal Cycle Times

In the focus groups, optimal cycle times were discussed. We got the distinct impression that this question is not one that has been seriously contemplated by most respondents. One respondent commented on the novelty of considering “where we’d like to be,” as opposed to “how good can we get?”

There is no doubt that shorter is better, and some would like to see turnaround in as little as **30 days**. Others point out that given the number of provisions involved, **30-60 days** is a more realistic target and more like what commercial entities are used to. Some comments from the focus group discussions:

Once you get past 60 days, delays become difficult [for sponsors].

60 to 90 days is optimal – 60 is pushing it for a CRADA – this would be equivalent to a WFO walk-through.

For WFOs – 2 weeks from scope established to signing.

Ideally, for CRADAs, it should take 2 weeks (for the approvals only).

Increasing speed is always a good thing – there are enough assurances to prevent liability, misunderstanding, etc.

Four to six weeks is possible if you eliminate advance payment.

A month to 45 days would be ideal for CRADAs ... [another participant] ... even if you could cut it to 60 days, you would be close to private sector expectations.

G. Additional Observations

- Cycle times are inherently lengthened by the number and complexity of issues that must be addressed, e.g., fairness of opportunity; export control, inclusion of work performed by foreign nationals; environmental, safety and health approvals; conflicts of interest; mission contributions; types of partners; advance payments; and IP rights. INL, as mentioned previously, has determined that there are some 110 requirements that they must meet for tech transfer. Although it is beyond the scope of this study to determine what requirements could be eliminated, it is important to note that the number of requirements impose a limit on how much cycle times can ultimately be reduced.
- Regardless of the number of agreements that fail because of cycle times, it is obvious that cycle times are one factor that reduces the potential for laboratories to work more extensively with NFEs. In other words, longer cycle times result in opportunity loss.
- Laboratory respondents are delighted that the agreement execution process is being studied and will have a high profile at DOE. Nevertheless, among some seasoned tech transfer officials, there is skepticism that any change will result. For example:

We endorse and contribute to changes as best as we can. But much lies with headquarters. I have a chart from 1993 through 2010 that illustrates how often certain points about changing the process or terms were raised. Who is the responsible [official for making policy like this]? [Focus Group]

VII. Appendix

A. Study Participation

1. Response Rates

Questionnaires representing 17 different laboratories / facilities and 13 Site Offices were received. Overall, an 85% response rate was obtained.

The chart below shows completed questionnaires (green) and non-responses (red). Gray represents situations where, because of the lab's situation, questionnaires were not sent.

Lab / Facility	LAB-CRADA	LAB-NF-WFO	SO - CRADA	SO - NF-WFO	
Ames	X	X	X	X	
Argonne	X	X	X	X	
Brookhaven	X	X	X	X	
BWXT-Pantex ¹⁹		X		X	
BWXT-Y12	X	X	X	X	
Idaho	X	X	X	X	
Kansas City Plant					
Lawrence Berkeley	X	X	X	X	
Lawrence Livermore	X	X	X	X	
Los Alamos	X	X			
NETL (GOGO laboratory – no Site Office; no WFO)	X				
NREL	X	X	X	X	
Oak Ridge	X	X	X	X	
Pacific Northwest	X	X	X	X	
Princeton Plasma Physics	X	X	X	X	
Sandia	X	X	X	X	
Savannah River	X	X			
Thomas Jefferson	X	X			
					Overall
TOTAL Completed:	16	16	12	13	57
TOTAL Possible:	17	17	16	17	67
Response Rate:	94%	94%	75%	76%	85%

Figure 11: Survey Participation and Response Rates, Labs and Site Offices

¹⁹ No recent CRADAs have been executed at this facility.

2. Respondents Completing Questionnaires

Respondents were asked if they were the key point of contact (POC) at each laboratory for CRADAs only, NF-WFOs only, or both. Numbers of respondents reporting their responsibilities are shown below. A full list of participants is included in the tables following.

Table 34: POCs for CRADAs, NF-WFOs, or Both

Main Point of Contact for ...	Laboratories	Site Offices
	(n)	(n)
CRADA agreements only	8	3
NF-WFO agreements only	8	4
Both CRADA and NF-WFO agreements*	8	9

**Respondent filled out both versions of the questionnaire*

Table 35: List of Laboratory Respondents

Laboratory	Respondent	Main Point of Contact for ...
Ames	Debra L. Covey Title: Assoc. Laboratory Director Organization: Ames Lab, Office of Sponsored Research and Administration	Both CRADA and NF-WFO agreements
ANL	Stephan A. Lake Title: Manager, Business Development & Marketing, Technology Development & Commercialization Division (TDC) Organization: Argonne National Laboratory	CRADAs
	Vanessa Mendez Title: Interim Manager, Work-for-Others, Technology Development and Commercialization Division Organization: Argonne National Laboratory	NF-WFOs
BNL	Michael J. Furey Title: Manager, Research Partnerships Organization: Brookhaven National Laboratory	Both CRADA and NF-WFO agreements
INL	Kathleen Bohachek Title: Agreement, CRADA, Copyright Administrator Organization: Idaho National Laboratory Technology Deployment E-mail: Kathleen.Bohachek@inl.gov Telephone: (208) 526-3037	CRADAs
	Sue Forman Title: WFO Admin Organization: Idaho National Laboratory Technology Deployment	NF-WFOs
LBNL	Jeff Weiner Title: Manger, Office of Sponsored Projects and Industry Partnerships Organization: Lawrence Berkeley National Laboratory	Both CRADA and NF-WFO agreements
LLNL	M. Ines Gomez Title: Business Development Associate Organization: Industrial Partnerships, LLNL	CRADAs
	Sharon Bobbitt (Meredith Evans) Title: Work for Others Business Officer Organization: Planning and Financial Services Directorate, LLNL	NF-WFOs
LANL	Jerome Garcia Title: Program Manager for Agreements Organization: LANL Tech Transfer Office (Primary POC) Name: John Mott Title: R&D Manager Organization: LANL Tech Transfer Office	Both CRADA and NF-WFO agreements

Laboratory	Respondent	Main Point of Contact for ...
NETL	Jessica Sosenko Title: Technology Transfer Analyst Organization: National Energy Technology Laboratory	CRADAs
NREL	Anne Miller Title: Agreement Specialist Organization: National Renewable Energy Laboratory	CRADAs
	Jennifer Schofield Title: Agreements Manager Organization: National Renewable Energy Laboratory	NF-WFOs
ORNL	Mark Reeves Title: Associate Director, Technology Transfer Organization: Oak Ridge National Laboratory	Both CRADA and NF-WFO agreements
Pantex (no recent CRADAs)	Gregg Chambliss Title: WFO / Reimbursables Program Manager Organization: DSW & Campaigns / B&W Pantex	NF-WFOs
PNNL	Meg L. Soldat Title: Manager, IP Transactions (CRADA Manager) Organization: PNNL	CRADAs
	Marlene Meeks Title: WFO Specialist Organization: Contracts / Sales Management, PNNL	NF-WFOs
PPPL	Lewis Meilxer Title: Head of Technology Transfer Organization: Princeton University Plasma Physics Laboratory	Both CRADA and NF-WFO agreements
SNL	Lada Osokina Title: CRADA Agreements Specialist/ Sr. Member of Technical Staff Organization: Sandia National Laboratories	Both CRADA and NF-WFO agreements
SRNL	Steve Wach and John Olschon Title: Manager Technology Transfer Section Organization: Savannah River National Laboratory	CRADAs
	Steve Sheetz Title: Manager, Work for Others Organization: Tech Transfer	NF-WFOs
TJL	Joe Scarcello Title: Chief Financial Officer and Manager Business Operations Organization: Jefferson Science Associates	Both CRADA and NF-WFO agreements
Y12	Tammy Graham Title: Manager, Technology Transfer Organization: Y-12 National Security Complex	CRADAs
	Susan Beckham Title: Business Manager Organization: Y-12 National Security Complex	NF-WFOs

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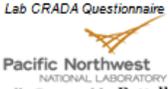
Table 36: List of Site Office Respondents

Site Office	Respondent	Main Point of Contact for ...
Ames	Jennifer A. Stricker Title: Contracting Officer Organization: Ames Site Office	Both CRADA and NF-WFO agreements
ANL	Roberta Dalton Title: Program Manager, Reimbursable Work Organization: Argonne Site Office	Both CRADA and NF-WFO agreements
BNL	Kim Nekulak Title: Contracting Officer Organization: DOE / BHSO	CRADAs
	Robert Gordon Title: Director, Business Management Division Organization: DOE: Brookhaven Site Office	NF-WFOs
INL	Jose Elizondo Title: Program Manager Organization: DOE-ID Technology Transfer	CRADAs
	Lance Lacroix Title: WFO Administrator Organization: DOE-ID	NF-WFOs
LBNL	Aundra Richards Title: Site Manager Organization: DOE Berkeley Site Office	Both CRADA and NF-WFO agreements
LLNL	David Goett Title: Contracting Officer Organization: NNSA / LSO	Both CRADA and NF-WFO agreements
NREL	Jean Siekerka Title: Contracts Specialist / Contracting Officer Organization: Golden Field Office	Both CRADA and NF-WFO agreements
ORNL	Robert Hamilton Title: Director, Office of Partnerships and Program Development Organization: Oak Ridge Office	Both CRADA and NF-WFO agreements
Pantex	Emory Hogan Title: Work for Others Program Manager Organization: Pantex Site Office / Assistant Area Manager for Oversight and Assessment	NF-WFOs (No recent CRADAs at this facility)
PNNL	Michael Angulo Title: CRAD Coordinator Organization: DOE-Pacific Northwest Site Office (PNSO)	CRADAs
	Genice Madera Title: Work for Others Coordinator Organization: DOE- Pacific Northwest Site Office (PNSO)	NF-WFOs
PPPL	Kim Tafe Title: Contracting Officer Organization: Princeton Site Office	Both CRADA and NF-WFO agreements
SNL	Mary Beth Villanueva Title: Reimbursable Program Specialist Organization: DOE / NNSA / SSO / Office of Programs	Both CRADA and NF-WFO agreements
Y12	Robin Q. Spradlen Title: Contracting Officer for Reimbursable Work Organization: NNSA Y-12 Site Office	Both CRADA and NF-WFO agreements

B. Questionnaires

1. Laboratory CRADA Questionnaire

Lab CRADA Questionnaire



Pacific Northwest
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AGREEMENT EXECUTION PROCESS STUDY

**** Lab/Facility Questionnaire: CRADA Agreements ****

Study Background: In the fall of 2009, the Commercialization and Deployment Office within DOE-EERE requested that PNNL work in collaboration with the DOE Technology Transfer Working Group (TTWG) on a project that could have a positive impact on the "speed of business" at DOE labs and facilities entering into agreements to work with industry. PNNL worked closely with the TTWG membership and others across the DOE system to develop a statement of work for a study intended to survey and analyze the practices used by DOE labs, facilities, and site offices in establishing non-federal work for others (NF-WFO) and cooperative research and development agreements (CRADAs).

This survey is intended to capture data related to the practices in place at various facilities, with the goals being to characterize existing agreement execution processes, identify best practices, and develop insights on how to make the processes for agreement execution more efficient, more rapid, and more consistent. A contract has been established with Perspectives of Albuquerque, New Mexico to conduct the survey, and to compile and analyze the data for summary recommendations. Your input to this survey will be compiled with other input received and recommendations for improvements will be brought forward to the TTWG and the DOE Technology Transfer Coordinator.

Thank you in advance for your participation!

NOTE: You were chosen for this study because you were identified as a **key POC for CRADAs** at your lab/facility. **If this is not true, please do not complete the questionnaire.** Contact Ann Miksovich (telephone: (505) 881-0370; email: ann@perspectivesweb.com) with a suggestion about who the correct POC may be, and we'll go from there.

Study team contacts at PNNL are Bruce Harrer [bruce.harrer@pnl.gov] and Cheryl Cejka [Cheryl.Cejka@pnl.gov].

General instructions:

- Please type in your answers as indicated for each question below. Feel free to add commentary where you feel it is appropriate to explain your answers clearly. Use as much space as you need.
- "NF-WFO" = Non-Federal Work For Others; "SOW" = Statement of Work
- For questions where a list of response categories is provided, signify answer by placing an "x" in the brackets before the appropriate response, e.g., "[X] Yes".
- Some questions ask for an assessment based on your professional opinion on a subject (e.g., questions 24, 25, 27, 28, 29). Please be candid, thank you!

Lab CRADA Questionnaire 1

1. Your name, title, organization, and contact information:

Name: _____
 Title: _____
 Organization: _____
 E-mail: _____
 Telephone: _____

2. I am the main point of contact for: (signify answer by placing an "x" in the brackets before the appropriate response)

[] CRADAs
 [] Both CRADA and NF-WFO agreements – **please also complete the NF-WFO questionnaire provided under separate cover**

- For questions 3a-3c, please report data for FY09.
- If you do not have specific data, please provide your best estimates with figures followed by the notation, "est."
- NOTE: Other than in question 3a, all questions refer to newly executed agreements, and not continuations/amendments.

BACKGROUND ON NUMBER OF CRADAs EXECUTED BY YOUR LAB/FACILITY:

3a. How many CRADA agreements were executed by your lab/facility in FY09?

	CRADAs
New CRADAs executed in FY09	_____
Continuations /Amendments to ongoing CRADAs	_____

3b. How many FY09 new CRADA agreements were "100% Funds-in CRADAs" and "Partial Funds In" CRADAs? (Enter "0" if none.)

Number of 100% Funds-in CRADAs (funds-in from participant):	_____
Number of Partial Funds-in CRADAs (funds-in from participant):	_____

3c. Please estimate how many FY09 CRADA agreements involved **brand new participants** (as opposed to participants already having other CRADA agreements with your lab/facility)? (Enter "0" if none.)

Number of agreements involving brand new CRADA participants:	_____
---	-------

4. [reserved]

➔

GENERAL QUESTIONS ON CYCLE TIMES FOR CRADAs:

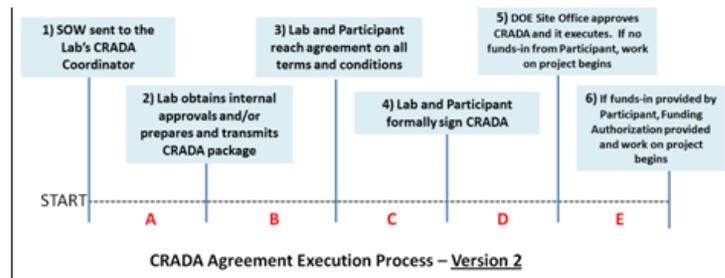
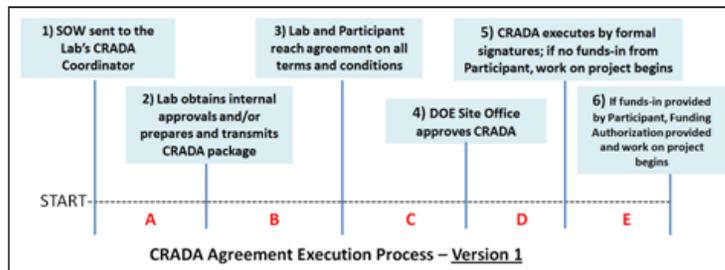
5. Two figures illustrating a generalized view of major milestones in the CRADA agreement execution process are shown below. The differences between the two appear in steps 4 and 5 (blue boxes). Which of these two figures comes closest to the process used at your lab/facility?

- Version 1 (top figure) } Use the figure you selected to guide your answer to q. 6 on the next page. Read instructions in box below before proceeding.
- Version 2 (bottom figure) }
- My lab's/facility's process is vastly different – Read instructions in box below and proceed to Question 6.

NOTE: We realize that there may be other process flows and/or important steps prior to and after the "start" and "end" points shown in the figures below, but the goal here is to collect information across the DOE complex in a consistent way in question 6 on the following page. There are two opportunities later in this questionnaire to provide steps not illustrated in the generalized chart:

- In the chart showing detail on process steps (questions 10 – 16).
- In question 17, where you can provide detail on steps involving the Tech Transfer Office prior to receiving the SOW.

Thus, in both, you have the opportunity to describe any major time consuming steps in the execution process that this approach may have missed. In addition, the exact language in the figures below is not that important so long as the general steps are represented. If your process has key steps that are omitted or are totally out of sequence with the figures below, feel free to note them in question 7.



NOTE: If your lab/facility does not conduct one of these steps or does one of the steps concurrently with another so that it has no impact on overall cycle time, mark that time period "not applicable" in the question below.

6. Using the figure you chose in q. 5, please enter the cycle time for each step (that is, the number of days required to complete the step) for each time period shown in the figure (indicated by the red letters). Fill in the number of calendar days in the right hand column, and then provide a total in question 6f.

NOTE: The answers to questions 6a-6e (please enter in the right column in the table below) should provide a snapshot of the time required to prepare and process a new CRADA agreement, broken down by the time required for activities by your lab/facility and by the DOE Site Office. If your lab/facility does not keep data on these time periods, please do your best to estimate them.

Answer only for the one version of the figure chosen in question 5.

Cycle Times for Key Milestones in the Agreement Execution Process (see figures on previous page)	CRADAs (# of calendar days)
6a. Time Period A: Approximately how many calendar days occur between step 1) the SOW is sent to the Lab's CRADA Coordinator (or equivalent at your Lab), and step 2) the Lab obtains internal approvals and/or prepares and transmits the CRADA package?	
6b. Time Period B: The time between step 2) the Lab obtains internal approvals and/or prepares and transmits the CRADA package, and step 3) the Lab and participant reach agreement on all terms and conditions?	
6c. Time Period C: Version 1: The time between step 3) the Lab and participant reach agreement on all terms and conditions, and step 4) the DOE Site Office approves the CRADA? Version 2: The time between step 3) the Lab and participant reach agreement on all terms and conditions, and step 4) the Lab and Participant formally sign the CRADA?	
6d. Time Period D: Version 1: The time between step 4) the DOE Site Office approves the CRADA, and step 5) the CRADA executes by formal signatures; if no funds-in are provided from the participant, work on project begins? Version 2: The time between step 4) the Lab and participant formally sign the CRADA, and step 5) the DOE Site Office approves the CRADA and it executes; if no funds-in are provided from the participant, work on project begins?	
6e. Time Period E: Version 1: The time between step 5) the CRADA executes by formal signatures, and step 6) if funds-in are provided by participant, Funding Authorization is provided and work on project begins? Version 2: And the time between step 5) the DOE Site Office approves CRADA and it executes, and step 6) if funds-in provided by Participant, Funding Authorization is provided and work on project begins.	
6f. BOTH VERSIONS: Please total the five numbers in questions 6a-6e. Total cycle time:	

7. General comments on cycle time steps? (If none, please say so)

Answer:

8. [reserved]

9. In your experience, are there significant variations in the cycle times for the CRADA agreement execution process at your lab/facility?

Yes – Answer q. 9a

No – Skip to q. 10

9a. IF YES: What are the three or four main reasons for this variability? Please explain.

1:

2:

3:

4:

STEPS IN AGREEMENT EXECUTION PROCESS:

NOTE: For the next set of questions (10 – 16), please enter your responses in the chart on the next page.

BEGIN at the point where the SOW is sent to the CRADA Coordinator (or equivalent function at your lab/facility) and **END** with authorization to start work on the CRADA project. If no funds-in from the participant are involved, this occurs when the CRADA is fully executed by all parties. If funds-in are involved, this occurs when Funding Authorization reflecting the funds-in contribution is received from DOE.

10. What are the **major steps** in the agreement execution process for new agreements? Use chart on the next page to respond.

11. Briefly, what is the **purpose of each step**? Use chart on the next page to respond.

12. Roughly **how long does it take** to execute each step? If your lab/facility does not keep data on this, please give us your best estimate, and indicate with "est." Use chart on next page to respond.

13. Please indicate which steps, if any, are **prone to delays**. Use chart on next page to respond.

14. For the steps you noted as prone to delays, **why** are these steps prone to delay? Use chart on next page to respond.

15. **How many individuals (roles)** are involved in reviewing a new agreement for each step? Please specify people (roles) in chart. Use chart on the next page to respond.

16. What **documentation** is developed at each step? Use chart on next page to respond. If none, please indicate as such in the chart.

(FINISHED WITH QUESTIONS USING CHART ON THE NEXT PAGE.)



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17. Is your Tech Transfer Office (or equivalent) involved in any major way(s) before the SOW is received by the CRADA Coordinator (or equivalent)?

Yes – Answer q. 17a

No – Skip to q. 18

- 17a. Please explain and specify the number of days for the(se) major step(s) in the process involving the Technology Transfer Office that occurs before the SOW is received.

Answer:

18. **Staffing Issues:** Is your lab/facility **critically understaffed** to handle its typical workload for any of the steps involved in CRADA agreements?

Yes – Answer q. 18a

No – Skip to q. 19

- 18a. *IF YES:* Please indicate the steps where your lab/facility is critically understaffed and whether understaffing is a major or minor contributor to delays in executing these steps.

Answer:

19. **Failure to execute:** In the past five years, have any CRADA agreements failed to execute because of **cycle time delays** in the agreement execution process?

- a. Approximately how many? Answer (enter "0" if none):

- b. *IF ANY:* What were the main reasons for the cycle time delay in each case?

Answer:

CRADA AGREEMENT MODELS:

20. What types of standardized CRADA agreements does your lab/facility use? (*Check all that apply*)

Standard DOE Modular Agreement (i.e., <http://techtransfer.energy.gov/arrangements>)

Short-form CRADA

USIC CRADA

Other type(s) (*please specify*):

21. Does your lab/facility prepare a separate **Joint Work Statement (JWS)** document as part of its standard set of CRADA documents?

Yes – Answer q. 21a

No – Skip to q. 22

- 21a. *IF YES:* Please describe the general information included in the JWS, the role of the JWS document in the CRADA agreement execution process and how the JWS gets approved.

Answer:

22. Does your lab/facility use the **CRADA Manual** (reference: https://www.directives.doe.gov/directives/current-directives/483.1-DMannual-1/rat_downloadfile) to select alternative language options (also appearing in the DOE modular CRADA) when applicable? (If yes, please check the appropriate option below – use verbatim, or use modified versions in your standard agreement model)

Yes – use alternative language options verbatim – Answer q. 22a

Yes – use options, but some/all are modified in our lab's/facility's standard model – Answer q. 22a

No – Skip to q. 23

- 22a. Other than the modifications/options allowed for in the verbatim language of the CRADA Manual, is your lab's/facility's model CRADA **different than the DOE modular model**?

Yes, it is different – Answer q. 22b

No – Skip to q. 23

Don't know – Skip to q. 23

- 22b. *IF DIFFERENT:* In what significant way(s) is it different? (*Please focus only on significant differences – answer below*)

OTHER CRADA ISSUES:

23. In FY09, please estimate how many new CRADA agreements involved those where the participant agreed to your lab's/facility's standard CRADA terms and conditions verbatim, without any modifications? (*If none, enter "0"*)

Number of agreements:

OTHER CRADA ISSUES:

24. How much flexibility would you say your lab/facility has in modifying the terms and conditions of a CRADA? Use a scale of "1" to "10," where "10" means "completely flexible," and "1" means "not at all flexible."

Answer:

25. What reasons would you give to support this score in question 24?

Answer:

26. In terms of flexibility, what types of changes to the verbatim language or to the fundamental intent of the provisions need to be approved by DOE (Site Office, Operations Office, Headquarters, or other non-Lab entity)? (Check all that apply on left and specify which DOE entity provides the approval in the column on the right. If you need to provide a further explanation, please do so below the table.)

Check all that apply		DOE Entity
<input type="checkbox"/>	Any change to the <u>verbatim language</u> of the <u>DOE Modular CRADA</u> needs approval.	
<input type="checkbox"/>	Any change to the <u>verbatim language</u> of the <u>CRADA Manual options</u> needs approval.	
<input type="checkbox"/>	Only changes to the <u>fundamental intent of the provisions</u> of either the <u>DOE Modular CRADA</u> or the <u>CRADA Manual options</u> need approval.	

27. How flexible in modifying CRADA agreements would your lab's/facility's CRADA participants say you are? Use a scale of "1" to "10," where "10" means "completely flexible," and "1" means "not at all flexible."

Answer:

28. What reasons would you give to support your answer in question 27?

Answer:

29. What part(s), if any, of the CRADA agreement execution process do your CRADA participants complain about the most? Why?

Answer:

30. What does the DOE Site/Ops Office most often find issues with, in the CRADAs they review? (If nothing significant, please say so.)

Answer:

31. [reserved]

STREAMLINING AND BEST PRACTICES:

32. Does your lab/facility use an automated information system to support CRADA processing?

No

Yes – Please provide the name of this system and a short description of its functionality:

33. Please describe any variations to the CRADA agreement process that expedite approvals 1) for particular categories of agreement, or 2) for agreements below a specific dollar threshold. (If "none," please indicate as such.) Please indicate in your answer approximately how much time (number of days) these expedited processes save (that is, how much cycle time is reduced).

Answer:

34. Has your lab/facility instituted any processes for streamlining CRADA agreements for 1) participants you've already worked with at the lab/facility OR 2) for streamlining the review and approval of agreement amendments? If yes, please explain.

No

Yes to either or both – Please explain:

35. Are there any (other) tools, processes, or agreement modifications used by your lab/facility that contribute significantly to streamlining the CRADA agreement execution process? If yes, please explain what they are and how they have streamlined the process.

No – Skip to q.36

Yes – Please explain:

35a. IF YES IN Q. 35: Please estimate how much these tools, processes or agreement modifications have reduced cycle time, if at all: (if unsure, please say so)

Answer:

36. Has your lab/facility developed (any other) "best practices" for the CRADA agreement execution process not already described above? Please describe or attach document as necessary.

No – Skip to q. 37

Yes – Please explain:

36a. IF YES IN Q. 36 (BEST PRACTICES HAVE BEEN DEVELOPED): Please estimate how much these best practices have reduced cycle time, if at all: (if unsure, please say so)

Answer:

Please attach document describing best practices used by your lab/facility, if available.

37. Any additional information or comments you would like to add at this time?

Answer:

Thank you! Please email this completed questionnaire and any attachments to Ann Mikovic at Perspectives (email: ann@perspectivesweb.com). Don't hesitate to contact Ann if you have any questions: (505) 881-0370.

2. Laboratory NF-WFO Questionnaire

Lab NF-WFO Questionnaire



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AGREEMENT EXECUTION PROCESS STUDY

** Lab/Facility Questionnaire: NF-WFO Agreements **

Study Background: In the fall of 2009, the Commercialization and Deployment Office within DOE-EERE requested that PNNL work in collaboration with the DOE Technology Transfer Working Group (TTWG) on a project that could have a positive impact on the "speed of business" at DOE labs and facilities entering into agreements to work with industry. PNNL worked closely with the TTWG membership and others across the DOE system to develop a statement of work for a study intended to survey and analyze the practices used by DOE labs, facilities, and site offices in establishing non-federal work for others (NF-WFO) and cooperative research and development agreements (CRADAs).

This survey is intended to capture data related to the practices in place at various facilities, with the goals being to characterize existing agreement execution processes, identify best practices, and develop insights on how to make the processes for agreement execution more efficient, more rapid, and more consistent. A contract has been established with Perspectives of Albuquerque, New Mexico to conduct the survey, and to compile and analyze the data for summary recommendations. Your input to this survey will be compiled with other input received and recommendations for improvements will be brought forward to the TTWG and the DOE Technology Transfer Coordinator.

Thank you in advance for your participation!

NOTE: You were chosen for this study because you were identified as a **key POC for NF-WFOs** at your lab/facility. **If this is not true, please do not complete the questionnaire.** Contact Ann Miksovich (telephone: (505) 881-0370; email: ann@perspectivesweb.com) with a suggestion about who the correct POC may be, and we'll go from there.

Study team contacts at PNNL are Bruce Harrer [bruce.harrer@pnl.gov] and Cheryl Cejka [Cheryl.Cejka@pnl.gov].

General instructions:

- Please type in your answers as indicated for each question below. Feel free to add commentary where you feel it is appropriate to explain your answers clearly. Use as much space as you need to answer.
- "NF-WFO" = Non-Federal Work for Others; "SOW" = Statement of Work
- For questions where a list of response categories is provided, signify answer by placing an "x" in the brackets before the appropriate response, e.g., "[X] Yes".
- Some questions ask for an assessment based on your professional opinion on a subject (e.g., questions 24, 25, 27, 28, 29). Please be candid, thank you!

Lab NF-WFO Questionnaire

1

1. Your name, title, and organization:

Name:
Title:
Organization:
E-mail:
Telephone:

2. I am the main point of contact for: (signify answer by placing an "x" in the brackets before the appropriate response)

- NF-WFO agreements
- Both CRADA and NF-WFO agreements – **please also complete the CRADA questionnaire provided under separate cover**

- For questions 3a and 3c, please report data for FY09.
- If you do not have specific data, please provide your best estimates with figures followed by the notation, "est."
- NOTE: Other than in question 3a, all questions refer to newly executed agreements, and not continuations/amendments.
- NOTE: By NF-WFO agreements, we are referring to funds-in agreements with non-Federal entities processed through the DOE Work for Others process. Other types of funds-in agreements with non-federal entities, such as proprietary user facility agreements, should not be included or considered in your response.

BACKGROUND ON NUMBER OF AGREEMENTS EXECUTED BY YOUR LAB/FACILITY:

3a. How many NF-WFO agreements were executed by your lab/facility in FY09?

	NF-WFO
TOTAL: New agreements (executed in FY09)	
TOTAL: Continuations /Amendments to ongoing agreements	

3b. [reserved]

3c. Please estimate how many FY09 NF-WFO agreements involved brand new sponsors (as opposed to sponsors already having other NF-WFO agreements with your lab/facility)?

Number of agreements involving <u>brand new</u> NF-WFO sponsors:	
--	--

GENERAL QUESTIONS ON CYCLE TIMES FOR NF-WFOs:

4. Does the Site Office require that a new proposal for a WFO agreement with a non-Federal entity be approved before the lab/facility responds to the request from a potential partner, OR can the notification to the Site Office be made concurrently with submitting a proposal?

- Proposal must be approved by Site Office before lab/facility responds – Please answer q. 4a
- Notification to Site Office can be made **concurrently** with submitting a proposal – Skip to q. 5
- No notification to the Site Office is required prior to sending proposal/agreement to sponsor – Skip to q. 5

4a. How many days does this approval by the Site Office typically take?

Answer:

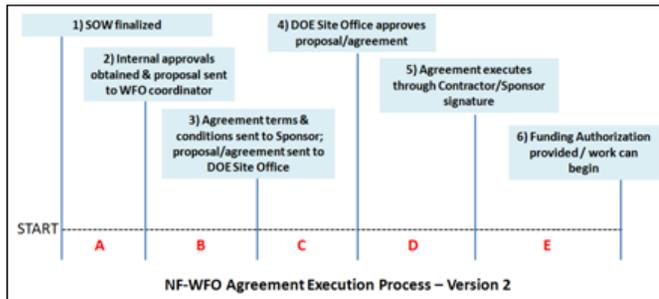
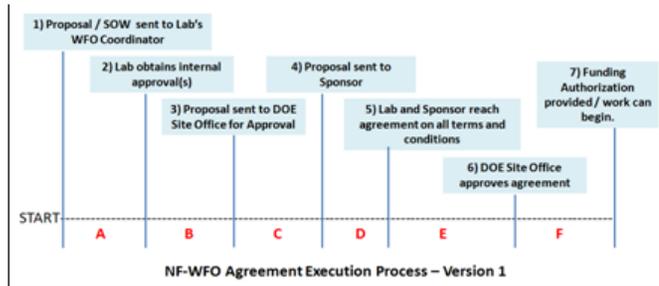


5. Two figures illustrating a generalized view of major milestones in the NF-WFO agreement execution process are shown below. Which of these two figures comes closest to the process used at your lab/facility?
- Version 1 (top figure) } Use the figure you selected to guide your answer to q. 6 on the next page. Read instructions in box below before proceeding.
 - Version 2 (bottom figure) }
 - My lab's/facility's process is vastly different – Read instructions in box below and then proceed to Question 6.

NOTE: We realize that there may be other process flows and/or important steps prior to and after the "start" and "end" points shown in the figures, but the goal here is to collect information across the DOE complex in a consistent way in question 6 on the following page. There are two opportunities later in this questionnaire to provide steps not illustrated in the generalized chart:

- In the chart showing detail on process steps (questions 10 – 16).
- In question 17, where you can provide detail on steps involving the WFO Office prior to receiving the SOW and/or proposal.

Thus, in both, you have the opportunity to describe any major time consuming steps in the execution process that this approach may have missed. In addition, the exact language in the figures below is not that important so long as the general steps are represented. If your process has key steps that are omitted or are totally out of sequence with the figures below, feel free to note them in question 7.



NOTE: If your lab/facility does not conduct one of these steps or does one of the steps concurrently with another so that it has no impact on overall cycle time, mark that time period "not applicable" in the question below.

6. Using the figure you chose in q. 5, please enter the cycle time for each step (that is, the number of calendar days required to complete the step) for each time period shown in the figure (indicated by the red letters). Fill in the days in the right hand column, and then provide a total in question 6g.

NOTE: The answers to questions 6a-6e/f (please enter in the right column in the table below) should provide a snapshot of the time required to prepare and process a new NF-WFO agreement, broken down by the time required for activities by your lab/facility and by the DOE Site Office. If your lab/facility does not keep data on these time periods, please do your best to estimate them.

Answer only for the version of the figure chosen in question 5.

Cycle Times for Key Milestones in the NF-WFO Agreement Execution Process (see figures above)	NF-WFOs (if calendar days)
6a. Version 1: Time Period A: Approximately how many calendar days occur between step 1) the Proposal and/or SOW is sent to the Lab's WFO Coordinator (or equivalent function at your Lab) and step 2) the Lab obtains internal approval(s)?	
Version 2: Time Period A: Approximately how many calendar days occur between step 1) the SOW is finalized, and step 2) internal approvals are obtained and the proposal is sent to the Lab's WFO coordinator (or equivalent function at your Lab)?	
6b. Version 1: Time Period B: The time between step 2) the Lab obtains internal approval(s), and step 3) the proposal is sent to the DOE Site Office for approval?	
Version 2: Time Period B: The time between step 2) internal approvals are obtained and the proposal is sent to the Lab's WFO coordinator, and step 3) agreement terms and conditions are sent to the sponsor; proposal/agreement sent to the DOE Site Office?	
6c. Version 1: Time Period C: The time between step 3) the proposal is sent to the DOE Site Office for approval and step 4) the proposal is sent to the sponsor?	
Version 2: Time Period C: The time between step 3) agreement terms and conditions are sent to the sponsor; proposal/agreement sent to the DOE Site Office, and step 4) the DOE Site Office approves the proposal/agreement?	
6d. Version 1: Time Period D: The time between step 4) the proposal is sent to the sponsor, and step 5) the Lab and sponsor reach agreement on all terms and conditions?	
Version 2: Time Period D: The time between step 4) the DOE Site Office approves the proposal/agreement, and step 5) the agreement executes through contractor/sponsor signature?	
6e. Version 1: Time Period E: The time between step 5) the Lab and sponsor reach agreement on all terms and conditions, and step 6) the DOE Site Office approves the agreement?	
Version 2: Time Period E: The time between step 5) the agreement executes through contractor/sponsor signature, and step 6) the Funding Authorization is provided and work can begin?	
6f. Version 1 only: Time Period F: The time between step 6) the DOE Site Office approves the agreement, and step 7) the Funding Authorization is provided and work can begin?	
6g. BOTH VERSIONS: Please total the six numbers (if you are using Version 1 of the figure) or five numbers (Version 2) in questions 6a-6f. Total cycle time:	

7. General comments on cycle time steps? (If none, please say so)

Answer:

8. [reserved]

9. In your experience, are there significant variations in the cycle times for the NF-WFO agreement execution process at your lab/facility?

Yes – Answer q. 9a

No – Skip to q. 10

9a. IF YES: What are the three or four main reasons for this variability? Please explain.

1:

2:

3:

4:

STEPS IN AGREEMENT EXECUTION PROCESS:

NOTE: For the next set of questions (questions 10 – 16), please enter your responses in the chart on the next page.

BEGIN at the point where the SOW and/or Proposal is sent to the NF-WFO Coordinator (or equivalent function at your lab/facility) and **END** with the authorization of the lab/facility to start work on the project.

10. What are the **major steps** in the agreement execution process for new agreements? Use chart on the next page to respond.

11. Briefly, what is the **purpose of each step**? Use chart on the next page to respond.

12. Roughly **how long does it take** to execute each step? If your lab/facility does not keep data on this, please give us your best estimate, and indicate with "est." Use chart on next page to respond.

13. Please indicate which steps, if any, are **prone to delays**. Use chart on next page to respond.

14. For the steps you noted as prone to delays, **why** are these steps prone to delay? Use chart on next page to respond.

15. **How many individuals (roles)** are involved in reviewing a new agreement for each step? Please specify people (roles) in chart. Use chart on the next page to respond.

16. What **documentation** is developed at each step? Use chart on the next page to respond. If none, please indicate as such in the chart.

(FINISHED WITH QUESTIONS USING CHART ON THE NEXT PAGE.)



FINAL REPORT

17. Is your WFO Office involved in any major way(s) before the NF-WFO SOW/proposal is received from the Principle Investigator (or equivalent)?
- Yes – Answer q. 17a
 No – Skip to q. 18
- 17a. Please explain and specify the number of days for the(se) major step(s) in the process involving the WFO Office that occurs before the SOW/proposal is received.
 Answer:
18. **Staffing Issues:** Is your lab/facility **critically understaffed** to handle its typical workload for any of the steps involved in NF-WFO agreements?
- Yes – Answer q. 18a
 No – Skip to q. 19
- 18a. IF YES: Please indicate the steps where your lab/facility is critically understaffed and whether understaffing is a major or minor contributor to delays in executing these steps.
 Answer:
19. **Failure to execute:** In the past five years, have any NF-WFO agreements failed to execute because of **cycle time delays** in the agreement execution process?
- a. Approximately how many? Answer (enter "0" if none):
- b. What were the main reasons for the cycle time delay in each case? Answer:

Questions 20-22: [reserved]

OTHER NF-WFO ISSUES:

23. In FY09, please estimate how many new NF-WFO agreements involved those where the participant agreed to your lab's/facility's NF-WFO standard terms and conditions verbatim, without any modifications? (If none, enter "0")
 Number of agreements:
24. How much flexibility would you say your lab/facility has in modifying the terms and conditions of a NF-WFO? Use a scale of "1" to "10," where "10" means "completely flexible," and "1" means "not at all flexible."
 Answer:
25. What reasons would you give to support this score in question 24?
 Answer:
26. [reserved]
27. How flexible in modifying NF-WFO agreements would your lab's/facility's NF-WFO sponsors say you are? Use a scale of "1" to "10," where "10" means "completely flexible," and "1" means "not at all flexible."
 Answer:
28. What reasons would you give to support your answer in question 27?
 Answer:
29. What part(s), if any, of the NF-WFO agreement execution process do your NF-WFO sponsors complain about the most? Why?
 Answer:
30. What does the DOE Site/Ops Office most often find issues with, in the NF-WFOs they review? (If nothing significant, please say so.)
 Answer:
31. Are waivers from the standard IP agreement terms specified by DOE used by your lab/facility in NF-WFO agreements?
 Yes – Answer q. 31a
 No – Skip to q. 32
- 31a. IF YES: Please explain under what conditions waivers are sought, whether DOE generally approves these waivers, the criteria used for approving them, and how these waivers affect the cycle time for NF-WFO approval. (If possible, please indicate the typical number of days the agreement can be delayed, if that is one of the effects of these waivers.)
 Answer:

STREAMLINING AND BEST PRACTICES:

32. Does your lab/facility use an automated information system to support NF-WFO agreement processing?

No

Yes – Please provide the name of this system and a short description of its functionality:

33. Please describe any variations to the NF-WFO agreement process that expedite approvals 1) for particular categories of agreement, or 2) for agreements below a specific dollar threshold. (If "none," please indicate as such.) Please indicate in your answer approximately how much time (number of days) these expedited processes save (that is, how much cycle time is reduced).

Answer:

34. Has your lab/facility instituted any processes for streamlining NF-WFO agreements for 1) sponsors you've already worked with at the lab/facility OR 2) for streamlining the review and approval of agreement amendments? If yes, please explain.

No

Yes to either or both – Please explain:

35. Are there any (other) tools, processes, or agreements used at your lab/facility that contribute significantly to streamlining the NF-WFO agreement execution process? Please explain what they are and how they have streamlined the process.

No – Skip to q. 36

Yes – Please explain:

35a. IF YES IN Q. 35: Please estimate how much these tools, processes or agreement modifications have reduced cycle time, if at all: (if unsure, please say so)

Answer:

36. Has your lab/facility developed (any other) "best practices" for the NF-WFO agreement execution process not already described above? Please describe or attach document as necessary.

No – Skip to q. 37

Yes – Please explain:

36a. IF YES IN Q. 36 (BEST PRACTICES HAVE BEEN DEVELOPED): Please estimate how much these best practices have reduced cycle time, if at all: (if unsure, please say so)

Answer:

Please attach document describing best practices used by your lab/facility, if available.

37. Any additional information or comments you would like to add at this time?

Thank you! Please email this completed questionnaire and any attachments to Ann Miksovic at Perspectives (email: ann@perspectivesweb.com). Don't hesitate to contact Ann if you have any questions: (505) 881-0370.



3. Site Office CRADA Questionnaire

Site Office CRADA Questionnaire



Pacific Northwest
NATIONAL LABORATORY

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AGREEMENT EXECUTION PROCESS STUDY

**** DOE Site Office Questionnaire: CRADA Agreements ****

Study Background: In the fall of 2009, the Commercialization and Deployment Office within DOE-EERE requested that PNNL work in collaboration with the DOE Technology Transfer Working Group (TTWG) on a project that could have a positive impact on the "speed of business" at DOE labs and facilities entering into agreements to work with industry. PNNL worked closely with the TTWG membership and others across the DOE system to develop a statement of work for a study intended to survey and analyze the practices used by DOE labs, facilities, and site offices in establishing non-federal work for others (NF-WFO) and cooperative research and development agreements (CRADAs).

This survey is intended to capture data related to the practices in place at various facilities, with the goals being to characterize existing agreement execution processes, identify best practices, and develop insights on how to make the processes for agreement execution more efficient, more rapid, and more consistent. A contract has been established with Perspectives of Albuquerque, New Mexico to conduct the survey, and to compile and analyze the data for summary recommendations. Your input to this survey will be compiled with other input received and recommendations for improvements will be brought forward to the TTWG and the DOE Technology Transfer Coordinator.

Thank you in advance for your participation!

NOTE: You were chosen for this study because you were identified as a **key POC for CRADAs** at your Site Office. **If this is not true, please do not complete the questionnaire.** Contact Ann Miksovic (telephone: (505) 881-0370; email: ann@perspectivesweb.com) with a suggestion about who the correct POC may be, and we'll go from there.

Study team contacts at PNNL are Bruce Harrer [bruce.harrer@pnl.gov] and Cheryl Cejka [Cheryl.Cejka@pnl.gov].

General instructions:

- Please type in your answers as indicated for each question below. Feel free to add commentary where you feel it is appropriate to explain your answers clearly. Use as much space as you need to answer.
- "NF-WFO" = Non-Federal Work For Others; "SOW" = Statement of Work
- For questions where a list of response categories is provided, signify answer by placing an "x" in the brackets before the appropriate response, e.g., "[X] Yes".
- Some questions ask for an assessment based on your professional opinion on a subject (e.g., question 29). Please be candid, thank you!

Site Office CRADA Questionnaire

1

1. Your name, title, and organization:

Name:
Title:
Organization:
E-mail:
Telephone:

2. I am the main point of contact for: *(signify answer by placing an "x" in the brackets before the appropriate response)*

- CRADAs
- Both CRADA and NF-WFO agreements – **please also complete the NF-WFO questionnaire provided under separate cover**

- For question 3 please report data for FY09.
- If you do not have specific data, please provide your best estimates with figures followed by the notation, "est."
- Other than in question 3, all questions refer to newly executed agreements, and not continuations/amendments.

BACKGROUND ON NUMBER OF AGREEMENTS APPROVED BY YOUR SITE OFFICE:

3. How many CRADA agreements were approved by your Site Office in FY09?

	CRADAs
TOTAL: New agreements (executed in FY09)	
TOTAL: Continuations /Amendments to ongoing agreements	

Questions 4-6 [reserved]



GENERAL QUESTIONS ON CYCLE TIMES:

7a. Once your office receives a CRADA agreement from the lab or facility, approximately how many days are required for approval by your Site Office?

	CRADAs (calendar days)
Number of days to approve agreement:	

7b. Some DOE labs/facilities develop and utilize a Joint Work Statement (JWS) as part of the CRADA documentation. If so, does your Site Office approve this separately from the CRADA agreement?

- Yes, Site Office approves JWS separately – Answer q. 7c
- No, Site Office approves JWS together with the rest of the CRADA agreement – Skip to q. 8
- Not applicable (a JWS is not part of the process for getting approval to enter into a CRADAs at my Site Office) – Skip to q. 8

7c. IF SITE OFFICE APPROVES JWS SEPARATELY: Approximately how many days does it take for your Site Office to complete approval of the JWS?

	CRADAs (calendar days)
Number of days for JWS approval:	

8. Has your Site Office had any experience with having to send CRADA agreements to DOE Headquarters for review / approval?

- No (no experience with this) – Skip to q. 9
- Yes, Site Office has had to send agreements to HQ for review/approval – Answer q. 8a and 8b

8a. IF YES: Please explain the reason(s) your Site Office has had to do so.

Answer:

8b. Approximately how many days, on average, does obtaining such review/approval from HQ take, on average?

	CRADAs (calendar days)
Number of days for HQ review/approval:	

9. In your experience, are there significant variations in the cycle times for the CRADA approval process at your Site Office?

- Yes – Answer q. 9a
- No – Skip to q. 10

9a. IF YES: What are the three or four main reasons for this variability? Please explain.

- 1:
- 2:
- 3:
- 4:

STEPS IN AGREEMENT REVIEW/APPROVAL PROCESS:

NOTE: For the next set of questions (10 – 16), please enter your responses in the chart on the next page. **BEGIN** at the point where the CRADA agreement package is received by your Site Office; **END** with your office's approval of the agreement, OR if there are funds-in from the Participant, end with when Funding Authorization for the lab/facility to begin work is provided.

We are only interested in the steps involving the Site Office. The labs/facilities are being surveyed separately on their process steps.

10. What are the major steps in the agreement approval process for new CRADA agreements at your Site Office? Use chart on the next page to respond.

11. Briefly, what is the purpose of each step? Use chart on the next page to respond.

12. Roughly how long does it take to execute each step? If your Site Office does not keep data on this, please give us your best estimate, and indicate with "est." Use chart on next page to respond.

13. Please indicate which steps, if any, are prone to delays. Use chart on next page to respond.

14. For the steps you noted as prone to delays, why are these steps prone to delay? Use chart on next page to respond.

15. How many individuals (roles) are involved in reviewing a new agreement for each step? Please specify people (roles) in chart. Use chart on next page to respond.

16. What documentation is developed at each step? Use chart on next page to respond. If none, please indicate as such in the chart.

(FINISHED WITH QUESTIONS USING CHART ON THE NEXT PAGE.)

Site Office CRADA Questionnaire

4

USE THIS CHART FOR ANSWERING QUESTIONS 10 THROUGH 16. USE AS MANY ROWS AS YOU NEED.

We are only interested here in the steps involving the Site Office. Steps at the lab/facility are addressed in a separate questionnaire.

Q10. Major Steps in CRADA Review/Approval Process for your Site Office	Q11. Purpose of the step	Q12. Est. time to execute this step (days)	Q13. Step prone to delays? (Y/N)	Q14. Why prone to delays?	Q15. # people (roles) involved – please specify roles (e.g., 3: role1, role2, role3)	Q16. Documentation developed
START: CRADA agreement package received from Lab/Facility						
END: No funds-in; Site Office approves CRADA effort						
END: Funds-in: Funding Authorization provided						



17. Is your Site Office involved in any major way(s) before the full CRADA agreement package is received from the lab/facility?

- Yes – Answer q. 17a
- No – Skip to q. 18

17a. Please explain. And, if there are steps that involve your Site Office prior to receipt of the CRADA package from the lab/facility that significantly influence the time required for Agreement execution, please estimate the number of days for these steps.

Answer:

18. **Staffing Issues:** Is your Site Office **critically understaffed** to handle any of the steps involved in your typical workload of CRADA agreements?

- Yes – Answer q. 18a
- No – Skip to q. 24 (under "OTHER ISSUES" below)

18a. IF YES: Please indicate the steps where your office is critically understaffed and whether understaffing is a major or minor contributor to delays in executing these steps.

Answer:

OTHER ISSUES:

Questions 19-23 [reserved]

24. How much flexibility would you say your Site Office gives to your labs/facilities to modify the terms and conditions of a CRADA? Use a scale of "1" to "10," where "10" means "completely flexible," and "1" means "not at all flexible."

Answer:

25. What reasons would you give to support this score in question 24?

Answer:

26. In terms of flexibility, what types of changes need to be approved by your Site Office and/or DOE HQ? (Check all that apply)

- Any change to the verbatim language of the DOE Modular CRADA needs approval.
- Any change to the verbatim language of the CRADA Manual options needs approval.
- Only changes to the fundamental intent of the provisions of either the DOE Modular CRADA or the CRADA Manual options need approval.

27. What, if any, changes to a CRADA agreement require approval from DOE HQ?

Answer:

28. [reserved]

29. What issues, if any, does the Lab(s)/Facility(ies) that you work with have with the CRADA agreement approval process used by your Site Office? (If nothing significant, please say so)

Answer:

30. For CRADA agreements, what does your Site Office most often find issues with? (If nothing significant, please say so.)

Answer:

Questions 31-34 [reserved]

STREAMLINING AND BEST PRACTICES:

35. Has your Site Office developed any tools or processes that contribute significantly to streamlining the CRADA agreement approval process? If yes, please explain what they are and how they have streamlined the process.

- No – Skip to q. 36
- Yes – Please explain:

35a. IF YES IN Q. 35: Please estimate how much these tools or processes have reduced cycle time at your Site Office, if at all: (if unsure, please say so)

Answer:

36. Have (any other) "best practices" for the CRADA agreement approval process been developed by your Site Office that are not already described above? Please describe or attach document as necessary.

- No – Skip to q. 37
- Yes – Please explain:

36a. IF YES IN Q. 36 (BEST PRACTICES HAVE BEEN DEVELOPED): Please estimate how much these best practices have reduced cycle time at your Site Office, if at all: (if unsure, please say so)

Answer:

Please attach document describing best practices used by your Site Office, if available.

37. Any additional information or comments you would like to add at this time?

Answer:

Thank you! Please email this completed questionnaire and any attachments to Ann Miksovic at Perspectives (email: ann@perspectivesweb.com). Don't hesitate to contact Ann if you have any questions: (505) 881-0370.



4. Site Office NF-WFO Questionnaire

Site Office NF-WFO Questionnaire



Pacific Northwest
NATIONAL LABORATORY

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AGREEMENT EXECUTION PROCESS STUDY

** DOE Site Office Questionnaire: NF-WFO Agreements **

Study Background: In the fall of 2009, the Commercialization and Deployment Office within DOE-EERE requested that PNNL work in collaboration with the DOE Technology Transfer Working Group (TTWG) on a project that could have a positive impact on the "speed of business" at DOE labs and facilities entering into agreements to work with industry. PNNL worked closely with the TTWG membership and others across the DOE system to develop a statement of work for a study intended to survey and analyze the practices used by DOE labs, facilities, and site offices in establishing non-federal work for others (NF-WFO) and cooperative research and development agreements (CRADAs).

This survey is intended to capture data related to the practices in place at various facilities, with the goals being to characterize existing agreement execution processes, identify best practices, and develop insights on how to make the processes for agreement execution more efficient, more rapid, and more consistent. A contract has been established with Perspectives of Albuquerque, New Mexico to conduct the survey, and to compile and analyze the data for summary recommendations. Your input to this survey will be compiled with other input received and recommendations for improvements will be brought forward to the TTWG and the DOE Technology Transfer Coordinator.

Thank you in advance for your participation!

NOTE: You were chosen for this study because you were identified as a **key POC for NF-WFOs** at your Site Office. **If this is not true, please do not complete the questionnaire.** Contact Ann Miksovic (telephone: (505) 881-0370; email: ann@perspectivesweb.com) with a suggestion about who the correct POC may be, and we'll go from there.

Study team contacts at PNNL are Bruce Harrer [bruce.harrer@pnl.gov] and Cheryl Cejka [Cheryl.Cejka@pnl.gov].

General instructions:

- Please type in your answers as indicated for each question below. Feel free to add commentary where you feel it is appropriate to explain your answers clearly. Use as much space as you need to answer.
- "NF-WFO" = "non-Federal Work for Others"; "SOW" = Statement of Work
- For questions where a list of response categories is provided, signify answer by placing an "x" in the brackets before the appropriate response, e.g., "[X] Yes".
- Some questions ask for an assessment based on your professional opinion on a subject (e.g., question 29). Please be candid, thank you!

Site Office NF-WFO Questionnaire

1

1. Your name, title, and organization:

Name:
Title:
Organization:
E-mail:
Telephone:

2. I am the main point of contact for: (signify answer by placing an "x" in the brackets before the appropriate response)

- NF-WFOs
 Both CRADA and NF-WFO agreements – **please also complete the CRADA questionnaire provided under separate cover**

- For question 3, please report data for FY09.
- If you do not have specific data, please provide your best estimates with figures followed by the notation, "est."
- Other than in question 3, all questions refer to newly executed agreements, and not continuations/amendments.

BACKGROUND ON NUMBER OF AGREEMENTS APPROVED BY YOUR SITE OFFICE:

3. How many NF-WFO agreements were approved by your Site Office in FY09?

	NF-WFOs
TOTAL: New agreements (executed in FY09)	
TOTAL: Continuations /Amendments to ongoing agreements	

Questions 4-6 [reserved]



GENERAL QUESTIONS ON CYCLE TIMES:

7a. Once your office receives a NF-WFO proposal/agreement from the lab or facility, approximately how many days are required for a) review/approval of the agreement by your Site Office, and then b) for your Site Office's review/approval of the Funding Authorization? If these two review processes and approvals are done simultaneously, please note this and provide an estimate of the time required for both processes in the Funding Authorization (box b) below.

	NF-WFOs (calendar days)
a. Number of days to review/approve the proposal/agreement	
b. Number of days to approve Funding Authorization:	

7b. Is Site Office pre-approval required before a NF-WFO proposal/agreement is sent to a Sponsor?

- Yes – Answer q. 7c
- No – Skip to q. 8

7c. IF YES: Approximately how long does this approval by your Site Office take (number of calendar days)?

Answer:

8. Has your Site Office had any experience with having to send NF-WFO agreements to DOE Headquarters for review/approval?

- No (no experience with this) – Skip to q. 9
- Yes, Site Office has had to send agreements to HQ for review/approval – Answer q. 8a and 8b

8a. IF YES: Please explain the reason(s) your Site Office has had to do so.

Answer:

8b. Approximately how many days, on average, does obtaining such review/approval from HQ take, on average?

	NF-WFOs (calendar days)
Number of days for HQ review/approval:	

9. In your experience, are there significant variations in the cycle times for the NF-WFO agreement review/approval process at your Site Office?

- Yes – Answer q. 9a
- No – Skip to q. 10

9a. IF YES: What are the three or four main reasons for this variability? Please explain.

- 1:
- 2:
- 3:
- 4:

STEPS IN AGREEMENT REVIEW/APPROVAL PROCESS:

NOTE: For the next set of questions (10 – 16), please enter your responses in the chart on the next page.

BEGIN at the point where the NF-WFO proposal is received by your Site Office; **END** with funding authorization provided to the lab/facility by your Site Office.

We are only interested in the steps involving the Site Office. The labs/facilities are being surveyed separately on their process steps.

10. What are the **major steps** in the agreement execution process for new agreements at your Site Office? Use chart on the next page to respond.

11. Briefly, what is the **purpose of each step**? Use chart on the next page to respond.

12. Roughly **how long does it take** to execute each step? If your Site Office does not keep data on this, please give us your best estimate, and indicate with "est." Use chart on next page to respond.

13. Please indicate which steps, if any, are **prone to delays**. Use chart on next page to respond.

14. For the steps you noted as prone to delays, **why** are these steps prone to delay? Use chart on next page to respond.

15. **How many individuals (roles)** are involved in reviewing a new agreement for each step? Please specify people (roles) in chart. Use chart on next page to respond.

16. What **documentation** is developed at each step? Use chart on the next page to respond. If none, please indicate as such in the chart.

(FINISHED WITH QUESTIONS USING CHART ON THE NEXT PAGE.)

USE THIS CHART FOR ANSWERING QUESTIONS 10 THROUGH 16. USE AS MANY ROWS AS YOU NEED.

We are only interested here in the steps involving the Site Office. Steps at the lab/facility are addressed in a separate questionnaire.

Q10. Major Steps in NF-WFO Agreement Review/approval/execution Process for your Site Office	Q11. Purpose of the step	Q12. Est. time to execute this step (days)	Q13. Step prone to delays? (Y/N)	Q14. Why prone to delays?	Q15. # people (roles) involved – please specify roles (e.g., 3: role1, role2, role3)	Q16. Documentation developed
START: NF-WFO proposal package received by Site Office from Lab/Facility						
END: Site Office provides Funding Authorization to Lab/Facility						



17. Is your Site Office involved in any major way(s) before the full NF-WFO proposal package is received from the lab/facility?

- Yes – Answer q. 17a
- No – Skip to q. 18

17a. Please explain. And, if there are steps that involve your Site Office prior to receipt of the NF-WFO proposal package from the lab/facility that significantly influence the time required for agreement approval, please estimate the number of days for these steps.

Answer:

18. **Staffing Issues:** Is your Site Office **critically understaffed** to handle any of the steps involved in your typical workload of NF-WFO agreements?

- Yes – Answer q. 18a
- No – Skip to q. 24 (under "OTHER ISSUES" below)

18a. IF YES: Please indicate the steps where your office is critically understaffed and whether understaffing is a major or minor contributor to delays in executing these steps.

Answer:

OTHER ISSUES:

Questions 19-23 [reserved]

24. How much flexibility would you say you provide to your labs/facilities to modify the terms and conditions of a NF-WFO? Use a scale of "1" to "10," where "10" means "completely flexible," and "1" means "not at all flexible."

Answer:

25. What reasons would you give to support this score in question 24?

Answer:

Questions 26-28 reserved

29. What issues, if any, does the Lab(s)/Facility(ies) that you work with have with the NF-WFO agreement review/approval process used by your Site Office? (If nothing significant, please say so)

Answer:

30. For NF-WFO agreements, what does your Site Office most often find issues with? (If nothing significant, please say so.)

Answer:

Questions 31-34 [reserved]

STREAMLINING AND BEST PRACTICES:

35. Has your Site Office developed any tools or processes that contribute significantly to streamlining the NF-WFO agreement review/approval process? If yes, please explain what they are and how they have streamlined the process.

- No – Skip to q. 36
- Yes – Please explain:

35a. IF YES IN Q. 35: Please estimate how much these tools or processes have reduced cycle time at your Site Office, if at all: (if unsure, please say so)

Answer:

36. Have (any other) "best practices" for the NF-WFO agreement review/approval process been developed by your Site Office that are not already described above? Please describe or attach document as necessary.

- No – Skip to q. 37
- Yes – Please explain:

36a. IF YES IN Q. 36 (BEST PRACTICES HAVE BEEN DEVELOPED): Please estimate how much these best practices have reduced cycle time at your Site Office, if at all: (if unsure, please say so)

Answer:

Please attach document describing best practices used by your Site Office, if available.

37. Any additional information or comments you would like to add at this time?

Thank you! Please email this completed questionnaire and any attachments to Ann Miksovic at Perspectives (email: ann@perspectivesweb.com). Don't hesitate to contact Ann if you have any questions: (505) 881-0370.

C. Focus Groups: Agenda and Handouts

NOTE: The agenda below represents a generalized guide to topics covered in the discussion groups. Not all groups covered all topics, and issues may not have been covered in the order shown. The topic guide evolved to some degree over the course of group discussions.

DISCUSSION GROUP AGENDA

Introduction:

- Thank you for completing the questionnaires! We really appreciate your time and insights on this.
- Introductions – who is in the room
- Agenda overview: discussion of some general issues; clarifications of survey responses.
- Ground rules: 2 hours, need to cover both CRADA and WFO / Lab and Site Office issues – Richard Macklin will be directing and may have to defer some conversations if don't have time.
- Want to hear perspective from both sides (Lab/Site Office)

Specific Questionnaire Responses:

- **Cycle time clarifications:** Sum of "step" cycle times in questionnaires vs. your feeling for/knowledge of AVERAGE cycle times.
- **Agreement number clarifications:** Verify that questions such as # w/ brand new sponsors; # where terms accepted verbatim, etc. are based on FY09 newly executed agreements only.
- **CRADA vs. WFO cycle times:** If vastly different, summarize the difference in the process?
- **Lab-specific** clarification questions

Discussion of Issues *(cover as time permits):*

- **Best practices** – if you were to go to Dr. Edmonds and present what works best, what would you recommend? HANDOUT -- Lists of a number of good practices across labs -- what works best / priority items? Discuss those used at your Lab/Site Office
- Prioritization of importance of **factors adversely affecting cycle times** [SEE HANDOUT] – What's not working?
- **Cycle times:**
 - What would YOU consider **optimal average cycle times**? Why?
 - Is there anything about increasing the speed of business that makes you **nervous, leery, uncomfortable**?
- **Flexibility:** Is flexibility on terms and conditions a good thing? What are the pros and cons? Under what conditions?
- **Uniformity:** How important do you think it is that agreement procedures are uniform across laboratories? If so, how could this be achieved? Is such uniformity possible?
- **Model streamlined agreements:** What is needed? Single company vs. Industrial sector? What do you think the process should be for umbrella CRADAs in terms of involvement (negotiating specific T&Cs) by the labs; involvement by HQ?
- **Multi-Lab CRADAs** – if another lab takes the lead, is the Site Office willing to take T&Cs agreed upon by the other lab, or would they be involved throughout?
- **Your reaction to this:** What if **DOE approved only the JWS**, but not the agreement itself (unless there were major deviations from the model CRADA you use)?
- **Who is responsible for taking the risk of entering into a CRADA of NF-WFO – lab contractor (M&O), DOE site office, DOE HQ?** Do you have any concerns about the lab contractors in general taking on more risk than in the current situation?
- **Lab specific:** Intriguing comments; new process improvement efforts

Close:

- What are the most important take-aways from this discussion? Global recommendations.
- Anything else important to you that we should discuss?

FINAL REPORT

(Lists included in the best practices and cycle time factor handouts below were based on a preliminary scan of the survey data.)

Possible Best Practices to Reduce Cycle Times

(Your reactions? What's missing? What's most critical?)

1. **Automated systems** for agreement execution process management
2. Good **relationship/communication** with Site Office
3. Early (and continuing) **engagement of parties** involved with TT staff (with PI, Participant/Sponsor, Site Office; periodic internal business meetings including PI, etc.)
4. Conducting process steps in **parallel**
5. **Standardized templates** / forms / FIA (funds in agreement) templates -- *in particular?*
6. "**Reusable**" **non-standard terms and conditions** (non-standard, approved language from past agreements – can they be "reused"?)
7. **Electronic** vs. paper copies (mentioned frequently by Site Office respondents)
8. **Standardized agreement alternatives** (customized model for particular labs; customized for particular situations, e.g., umbrella / master CRADAs, industry sector, university model, etc.; WFO agreement alternatives,¹ e.g., Technical Services Agreements, Material and Services Order Forms, Umbrella agreements, repeat sponsor "streamlining")
9. Other ... ?

Strawman List:

Factors adversely affecting cycle times

(Prioritize Top 5; What's missing?)

1. Negotiation of **terms and conditions** with Partner
 - Intellectual property rights
 - U.S. Competitiveness Act / Alternative Net Benefit
 - Export Control
 - Organizational Conflict of Interest
 - Advance Payment/Indemnification T&Cs (WFOs)
 - ?
2. Required **signature approval delays** (e.g., Contracting Officer, Lab Director, etc.)
3. **Approval times** by ... DOE Site Office; DOE HQ or other DOE entity
4. **TYPE OF PARTICIPANT:** Foreign companies, Large companies, Universities, Multi-party agreements
5. **Staffing bottlenecks** at Lab / Site Office / Other DOE Office
6. **Legal reviews** by Participant(s) and/or by Lab/Facility/Site Office
7. **Appropriate transaction** questions? (e.g., WFO vs. CRADA vs. ??)
8. Receipt of **advance payment**
9. **Third party funding:** NFE's funding is coming from another source
10. **Other** ... ?

D. Streamlining and Best Practices Survey Results

1. Introduction

All lab surveys included a series of questions on streamlining and best practices:

- Whether the lab uses an automated information system to support CRADA or NF-WFO processing.
- Whether the lab uses any variations to the agreement process that expedite approvals 1) for particular categories of agreement, or 2) for agreements below a specific dollar threshold.
- Whether the lab has instituted any processes for streamlining CRADA or NF-WFO agreements for 1) participants they have already worked with at the lab / facility OR 2) for streamlining the review and approval of agreement amendments.
- Whether the lab uses any (other) tools, processes, or agreement modifications that contribute significantly to streamlining the CRADA agreement execution process.
- Other best practices

A shortened version of questions was presented to Site Office personnel:

- Has your Site Office developed any tools or processes that contribute significantly to streamlining the CRADA agreement approval process?
- Have (any other) “best practices” for the CRADA agreement approval process been developed by your Site Office that are not already described above? Please describe or attach document as necessary.

Counts on affirmative responses to the survey questions on best practices and streamlining are shown in the table below, and detailed comments follow the table.

Table 37: Best Practices and Streamlining (Summary Table)

Best Practices / Streamlining Used	CRADAs	WFOs
Laboratory Questions <i>Total n</i>	(16)	(16)
Automated information system	56% (9)	75% (12)
Expedited approvals for categories of agreement or those below a dollar threshold	31% (5)	50% (8)
Streamlined processes for familiar customers or for review / approval of amendments	69% (11)	75% (12)
Other streamlining tools / measures	50% (8)	50% (8)
Other best practices	44% (7)	44% (7)
Site Office Questions* <i>Total n</i>	(12)	(13)
Any streamlining tools / processes	67% (8)	69% (9)
(Any other) “best practices”	17% (2)	8% (1)

**Site Office questionnaires contained a truncated set of questions*

FINAL REPORT

2. Automated Information Systems (Labs)

Nine labs (56%) report using or currently developing an automated system to support CRADA processing. Twelve labs (75%) use or are developing a system supporting WFO processing. Sometimes these systems support both types of agreements. The systems vary in their functionality, lab to lab. Responses for both types of agreements are shown below.

Table 38: Automated Information Systems Used (Labs)

Lab	Lab uses an automated information system to support CRADA / WFO processing
ANL	<p>CRADAs: Argonne National Laboratory in-house developed Business Information System [<i>same as below?</i>] that handles CRADAs, Licensing Contract management, royalty distribution, and other actions.</p> <p>WFOs: Yes. Procurement and Requisition Integrated System (PARIS) – database and lab-wide integrated business management operation system designed to integrate procurement processes, interfaces with other laboratory automated systems as well as requisitioning and receiving functions, and interfaces with the Argonne financial system.</p>
INL	<p>WFOs: Yes. Work For Others Processing System (WPS). This system allows the PI to enter the data into a Risk Evaluation system which transfers the information over to the WPS system automatically. The WFO Admin attaches the finalized T&Cs, Cost Estimate and final SOW and sends the package out for review electronically. All reviewers can review simultaneously and submit their approvals. Once all reviews are received the package is sent to DOE.</p>
LANL	<p>CRADAs and WFOs: Yes - We currently use a hybrid system - partnerWORKs and a homegrown, web-based IT management tool - that allows for post execution information collection but not for workflow management.</p> <p>WFOs: We have developed and are deploying a web-based “eWFO” tool that is both a work flow management and information management tool.</p>
LBNL	<p>CRADAs and WFOs: Yes. We are implementing a commercial “contracts and grants” software system by CLICK Commerce that should help automate the info system and provide workflow of for completion of all documents. It will also tie in Animal and Human subjects, Conflict of Interest to the WFO approval process. (Also for WFOs, we currently have a People Soft grants system which is used for processing but it has limited automation.)</p> <p>FROM DISCUSSION: Cycle times are not the reason we bought [the Click Commerce system]. We don’t worry about cycle times [so much as] automated work flow, which will capture better data; eventually we will include the DOE Site Office in the system. This keeps people from Xeroxing, PDFing, downloading. Many universities have this system – it integrates animal studies, reviews, etc. You have system files rather than paper. This will probably go live in 3 years.</p>
LLNL	<p>WFOs: Yes. “eAWP” automates the WFO proposal preparation workflow and is a dynamic tool that <u>adjusts the proposal requirements based on proposal type</u>. In addition, it reduces the time required for approvals by <u>automatically emailing proposal notifications to the various reviewers and approvers required</u>.</p>
NREL	<p>CRADAs and WFOs: Yes – We use Thomson’s IP Manager to track the status of all agreements and generate reports. We do not yet use it to generate automated notices or obtain approvals, but are working towards this. [SEE ALSO SITE OFFICE RESPONSE TO THIS QUESTION.]</p>
ORNL	<p>CRADAs and WFOs: Yes. Electronic Work For Others system (eWFO). Allows electronic transmittal of data and documents associated with both CRADA and WFO projects to be circulated for approvals, reviews, etc.</p>
PNNL	<p>CRADAs: Yes – We enter our CRADA agreements into the IP Manager system (a database to manage IP, agreements, etc). Through this system, the IP Transactions Manager receives an automatic notification two months prior to the termination date of a CRADA project, at which time the IP Transactions Manager sends a notice to the PI. This helps us manage amendments to and closeout of CRADA projects.</p> <p>WFOs: Yes. We have a new electronic system (Work Authorization Lifecycle System – WALS) that processes all proposal and funding actions for PNNL and DOE approval.</p>

Lab	Lab uses an automated information system to support CRADA / WFO processing
SNL	<p><i>[PALS and eWFO are two separate systems but are described as having the same functionality below.]</i></p> <p>CRADAs: Yes. The Partnerships, Agreements and Licensing System (PALS) is a lab-wide, web-based application and database designed to (1) facilitate, track, and control the preparation, approval, execution, and close-out of CRADAs, (2) document Sandia compliance with established policies and procedures for executing and overseeing CRADAs, and (3) facilitate the searching, reporting, and analysis of CRADA information for both routine and special management inquiries. PALS provides a customized user interface with the specific functionality and capabilities needed for each user's role in executing CRADAs or overseeing the CRADA process.</p> <p>WFOs: Yes. The eWFO is a lab-wide, web-based application and database designed to (1) facilitate, track, and control the preparation, approval, execution, and close-out of NFE / FIAs, (2) document Sandia compliance with established policies and procedures for executing and overseeing NFE / FIAs, and (3) facilitate the searching, reporting, and analysis of NFE / FIA information for both routine and special management inquiries. The eWFO provides a customized user interface with the specific functionality and capabilities needed for each user's role in executing NFE / FIAs or overseeing the NFE / FIA process.</p>
SRNL	<p>CRADAs: Yes – WFO EASy™ provides electronic document routing (but only for the CRADA Questionnaire). This is a new implementation that was not available in FY09.</p> <p>WFOs: Lotus Notes based electronic approval system known as “WFO EASy”. It contains all electronic documentation, contains justification and certification questionnaires, tracks approval processes, allows parallel reviews, provides electronic concurrence, easy to monitor progress, and does have metric reporting. Included custom formats by WFO type, NFE, OFA, intelligence, etc.</p>
TJL	<p>CRADAs and WFOs: [Not currently, but] in FY10, we are implementing automated routing and report processing to OSTI.</p>
Y-12	<p>WFOs: Yes. eWFO is the electronic system we use to process federal and nonfederal proposals and funding. All information related to the project from sponsor contact to certification questions are captured in the Project Proposal Package. It has an electronic workflow feature that provides routing for the necessary approvals for each function. Associated documents are attached in the system – estimate, proposal, SOW, correspondence, etc.</p>

3. Expedited Approvals for Special Category / Capped Dollar Threshold (Labs)

Any variations to the CRADA / NF-WFO agreement process that expedite approvals 1) for particular categories of agreement, or 2) for agreements below a specific dollar threshold are described by the respondents below.

Table 39: Expedited Approvals for Special Category / Capped Dollar Threshold Agreements Used (Labs)

Lab	... expedite approvals 1) for particular categories of agreement, or 2) for agreements below a specific dollar threshold.
Ames	WFOs: The Lab may use the Technical Service Agreement for certain WFO[s] less than \$15K where the Laboratory is performing a technical service and not research. We have not yet entered into one of these; they only became available to us in FY2010.
ANL	CRADAs: Removal of the requirement that a pre-agreement certification that contains U.S. Competitiveness concurrence be executed prior to a JWS submission. The pre-agreement certification action can often add weeks to the CRADA process. WFOs: Cosmetic changes are okay, no DOE approval [required]; Property value – DOE approved dollars flexibility
BNL	CRADAs: Delegated authority to BNL to sign CRADAs with pre-approved Ts & Cs saves 2-4 weeks in process time. NF-WFOs: As mentioned below, the delegated authority for BNL to execute model agreements and amendments reduces process time by 2-4 weeks. [Below: “BNL has established model agreements with sponsors that we work with on a repeated basis. DOE has delegated authority to BNL for executing these model agreements. DOE has also delegated signature authority to BNL for amendments to extend the period of performance and to authorize additional work that is consistent with original scope.”]
INL	WFOs: Technical Services Agreement (TSA). If the following criteria is met then we can process the TSA without receiving DOE’s approval but must notify them after the fact: <ul style="list-style-type: none"> – Sponsor is a U.S. entity – Work does NOT involve Research & Development – Maximum cumulative funding does not exceed \$50,000 (U.S.) – The sponsor is aware that all work will be on a full cost recovery basis – Period of performance will not exceed 12 months – Work will not compete with the private sector – Work will not involve any classified or intelligence programs – Work will not involve a foreign sponsor – Work will not involve technical assistance to a foreign national or involve any foreign national employee, assignee or visitor – Work will not involve the transfer of any technical information, software, equipment or commodity to a foreign national – Work will not involve subcontracting to a U.S. Company or university that will employ foreign nationals to complete the work. – Work will not involve or give rise to personal private information, intellectual property, proprietary information, business sensitive information, security, official use only or environmental concerns – Work will not involve software development – Work will not involve any activities not normally performed by BEA – Work will not involve the sending or exchange of hazardous material(s) – Work will not involve nuclear non-proliferation detection technologies – Work will not involve space nuclear reactor, non-commercial power reactor, and radioisotope power source projects – Work will not involve construction or modification to Laboratory facilities – Work will not involve use of human or animal subjects – Work is not in response to a Request for Proposal (RFPs) – Work will not create a burden on DOE resources – Funding will not be used for facilitating, organizing, or administering work-shops or conferences on behalf of the sponsor. – Work will be consistent with and not interfere with INL missions

Lab	... expedite approvals 1) for particular categories of agreement, or 2) for agreements below a specific dollar threshold.
NREL	<p>CRADAs: The Master CRADA with Project Letter Agreement which is used when we perform the same project with a number of companies involves an expedited approval process in that we get the Joint Work Statement approved one time and have only one Master CRADA signed by DOE. This can reduce processing time by about half. We have also used an Umbrella CRADA with some companies which allow us to add a number of projects to one CRADA.</p> <p>WFOs: We have two streamlined WFO agreement types: A) The Technical Services Agreement, which is for work that involves no development of Intellectual Property, is very streamlined, in that there is a pre-approval by DOE, within a certain work scope and if terms are not altered. The dollar limit on these is \$250K, duration limit is 3 years. We save about two-thirds of the processing time using this mechanism (roughly 40 days saved). B) The Analytical Services Agreement, which is for work that involves use of standard NREL equipment such as spectrometry or calibration, is similarly streamlined. For work that is no longer than 3 months in duration, no more than \$25K, and with domestic Sponsors. We save nearly three-quarters of the normal WFO cycle on these (i.e., about 45 days).</p>
ORNL	<p>WFOs: We have a short-form WFO agreement, called a <u>Material and Services Order Form</u>, that can be used when the work to be performed for the sponsor is either a service, or making and providing a material (i.e., no R&D involved). It is a two-page, non-negotiable agreement that we use often. It often, but not always, reduces cycle times by 75% or more. Also, period of performance only extensions are somewhat streamlined in terms of approvals required.</p>
SNL	<p>WFOs:</p> <ul style="list-style-type: none"> • User Facilities: DOE / NNSA / SSO approved User Facility and unique agreement, agreement is not processed through the Site Office. • Designated Capabilities: Bi-annual pre-approved statements of work and determinations and certifications, expedited processing; NNSA approval for specific FIA is not required. • NNSA / SSO authorizes Sandia to execute <u>amendments to FIA <\$1M</u> and no-cost time extensions without obtaining NNSA / SSO approval.
SRNL	<p>CRADAs: A separate model agreement was generated and approved by DOE for CRADAs with universities. This addressed issues associated with terms and conditions for indemnification, publications, and export control. While we have yet to execute one of these CRADAs, the new model is expected to save 30 calendar days for CRADAs with universities. ... Also working on a Hybrid CRADA that would address having both universities and large corporations as participants to the same CRADA.</p>
Y12	<p>CRADAs: YSO contracting officer approval of Joint Work Statements supporting use of modular CRADA language (typically < one week)</p> <p>WFOs:</p> <ul style="list-style-type: none"> • Material and Services Order Form (MSOF) is an abbreviated version of the NFE Contract that we are allowed to use for any project that does not involve Research and Development. It is a one page front and back form. The front contains customer information, scope of work, period of performance, and funding information. It receives a signature from the customer and then from our Contracting Officer. The back page contains Terms and Conditions. It does not require Y-12 Site Office approval unless the project is \$250k or greater or if the total funding per customer exceeds \$350k in a year. YSO receives copies of all MSOF's after they are executed. • Master Proposal – the majority of our NFE projects consist of calibration work performed by our Metrology Organization. These are small dollar value jobs, typically \$2 – 5k, that occur throughout the year with various customers. We have a master proposal approved by YSO that gives us a ceiling amount of funding we can accept under this proposal in a five year period. Each individual job does not require a proposal in the system. We execute an MSOF for each individual job.

4. Streamlining for Previous Partners / Amendments (Labs)

Table 40: Streamlining Used for Previous Partners / Agreement Amendments (Labs)

Lab	... instituted any processes for streamlining agreements for 1) participants / sponsors you've already worked with at the lab OR 2) for streamlining the review and approval of agreement amendments?
Ames	CRADAs (and NF-WFOs?): Yes. If the client is a repeat client, we normally give them the same T&Cs as previously negotiated.
ANL	CRADAs: Yes. Over the years we have worked with DOE ASO to streamline the JWS format which in turn is now used in the CRADA Manual. We have developed new model CRADAs to streamline negotiations with companies. We also have revised the JWS submission approval process in order to cut time and paper work. We are currently in the process of further streamlining the CRADA process by <u>requesting that the divisions provide all required information / documentation at the time of the CRADA Initiation.</u> NF-WFOs: PARIS System
BNL	CRADAs: DOE has delegated signature authority to BNL for amendments to extend the period of performance and to authorize additional work that is consistent with original scope. NF-WFOs: BNL has established model agreements with sponsors that we work with on a repeated basis. DOE has delegated authority to BNL for executing these model agreements. DOE has also delegated signature authority to BNL for amendments to extend the period of performance and to authorize additional work that is consistent with original scope.
INL	NF-WFOs: Yes. We have a type of WFO that is informally referred to as an "umbrella agreement." We can submit a package with a statement of work that does not include the sponsor but specifies the work and deliverables. DOE approves the Statement of Work; then we can process agreements for Sponsors wanting the same work completed. The sponsors must meet the required guidelines.
LANL	CRADAs: Yes. Only amendments that require a substantial change to the SOW are routed to the Site Office for approval; all other amendments are approval by LANL attorney. NF-WFOs: Yes. We conducted a Lean Six Sigma exercise that led to: <ul style="list-style-type: none"> • Modifying the PI Package by introducing a "check the box" format for the determinations and certifications, improving instructions, and omitting redundant and restricting questions, which reduced the time to prepare the SOW and related documentation from 39 to 15 days. • Use of the parallel review / negotiation strategy we currently use with also reduces cycle time by an estimated 15 days. <p>The lessons of the Lean Six Sigma exercises also were applied in design of our eWFO tool. While the tool has yet to be fully deployed, we anticipate it will reduce the total time to put a WFO agreement into place by 20% to 30%.</p> <p>Amendments that do not include changes in Ts & Cs (e.g., no-cost time extensions and funded amendments with insignificant changes in the SOW) do not require legal (Laboratory or NNSA patent counsel) or Site Office approval. We estimate this saves approximately 30 days.</p>
LLNL	CRADAs: Yes. For participants we have already worked with, we will use previously approved CRADA language changes in any future CRADAs, resulting in quicker reviews and approval. We do concurrent internal reviews.
NREL	CRADAs: Yes - We can submit the request for approval for the Joint Work Statement at the same time that we submit the CRADA Modification for the DOE Contracting Officer's signature. With regard to new CRADAs with Participants we've already worked with, we find that we generally spend less time discussing CRADA terms, but new agreements still have to go through the usual approval process. Establishing an Umbrella CRADA to which modifications can be added does save time, however. NF-WFOs: Yes. Work with the California Energy Commission is relatively easy due to the pre-negotiated set of terms and conditions adopted by the Labs several years ago. We do not have a separate streamlined modification process, other than the No-cost Time Extensions need only Sponsor and lab approval, not DOE.
ORNL	CRADAs: Yes. No-cost time extensions can be done by the Laboratory without DOE pre-approval.
Pantex	NF-WFOs: Yes. The site has implemented a blanket NEPA Review form. Prior to implementation the cycle time was ~ 7-14 days, now we are at ~1-3 days.
PNNL	CRADAs: We have no streamlined process for CRADA agreements for CRADA Participants we've worked with in the past. If the CRADA amendment is solely for an extension of time, PNNL and the CRADA Participant enter into an amendment,

Lab	... instituted any processes for streamlining agreements for 1) participants / sponsors you've already worked with at the lab OR 2) for streamlining the review and approval of agreement amendments?
	which does not require DOE approval per the CRADA Manual. We then forward the executed amendment to PNSO.
PPPL	NF-WFOs: Yes. Time period extensions that do not involve changes in funding can be approved quickly.
SNL	<p>CRADAs: Yes. In such situations where Sandia has already worked with the same CRADA Partner in the past, Sandia often extends an offer to the CRADA Partner to enter into an Umbrella CRADA. The advantage is that the Umbrella CRADA Ts & Cs need only be negotiated once. After the Umbrella CRADA Ts & Cs are successfully negotiated, a Project Task Statement (PTS), akin to a statement of work, can be quickly drafted and executed for subsequent work, thus saving considerable time and effort in not having to negotiate new CRADA Ts & Cs for each new piece of work.</p> <p>NF-WFOs: Yes. Most amendments do not require DOE approval, e.g., NNSA / SSO authorizes Sandia to execute amendments to FIA <\$1M and no-cost time extensions without obtaining NNSA / SSO approval.</p>
SRNL	<p>CRADAs: Yes – Utilized umbrella CRADA for long term relationships. Terms and conditions are approved once and project task statements are used for each new task.</p> <p>NF-WFOs: Yes. A greatly abbreviated approval list for period of performance changes or addition of funds without any scope change.</p>
Y12	NF-WFOs: See previous question (Material and Services Order Form and Master Proposal)

5. Other Streamlining Measures (Labs)

Mentions of participation in TTWG or the Battelle Commercialization Council are not shown below.

Table 41: Other Streamlining Measures Used (Labs)

Are there any (other) tools, processes, or agreement modifications used by your lab / facility that contribute significantly to streamlining the CRADA NF-WFO agreement execution process? IF YES: Please estimate how much these tools ... have reduced cycle time, if at all:

Lab	Other Streamlining Measures	Reduction of Cycle Time
ANL	<p>CRADAs: Yes. CRADA models that have been developed for Participants that have cooperative agreements with DOE. We also have developed multi-lab CRADA models in concert with other Laboratories through the Technology Partnership Working Group and its prior organization the Multi-Lab Working group. Other model agreements were also developed over the years but are no longer active.</p> <p>NF-WFOs: PARIS System (see automated systems above)</p>	<p>CRADAs: Unsure. Each has cut processing time and difficulties?</p> <p>NF-WFOs: [unanswered]</p>
BNL	<p>NF-WFOs: DOE's delegation of authority to BNL for execution of model WFO agreements saves a significant amount of time as compared to obtaining DOE approval for each agreement.</p>	<p>NF-WFOs: Delegate authority to sign agreements reduces process time by 2-4 weeks.</p>
LANL	<p>CRADAs: Yes CRADA language changes are negotiated with and approved by the patent attorney at the NNSA Service Center; we do not negotiate / seek approval from the Site Office.</p> <p>NF-WFOs: [refers to previous answer about Lean Six Sigma]</p>	<p>CRADAs: [unanswered]</p> <p>NF-WFOs: [unanswered]</p>
LBNL	<p>CRADAs: Yes – JWS is approved within OSPIP. No need to have Lab Director review.</p> <p>NF-WFOs: We have a short form WFO agreement that can be used for small WFO (under \$150K and has no IP or indemnification).</p>	<p>CRADAs: 10 days</p> <p>NF-WFOs: [unanswered]</p>
LLNL	<p>CRADAs: By leveraging, as appropriate, previously approved CRADA language changes.</p> <p>NF-WFOs: Yes. Improvements include the implementation of the WFO Business Office that provides business services to facilitate WFO growth; development of a Statement of Work Template that provides consistency across proposals; WFO review earlier in the process allows the WFO Business Office to shepherd and manage the proposal processes from proposal development to proposal approvals; and eAWP enhancements for more streamlined electronic proposal processing.</p>	<p>CRADAs: An average of 3 to 5 days through the elimination of DOE legal review.</p> <p>NF-WFOs: An estimated 5 days</p>
NETL	<p>CRADAs: A new agreement process is currently being reviewed and hopefully approved that would significantly streamline the CRADA execution process.</p>	<p>CRADAs: Have not fully transitioned over to new process yet, so unsure</p>
NREL	<p>CRADAs: We do find that there is a benefit to conducting activities in parallel. We send out the CRADA terms early in the process so that we can be answering questions while we seek approval for the Joint Work Statement. We also send a link to the CRADA Manual with the terms. This allows the Participant's Legal Department to understand the statutory basis for the CRADA provisions so that they don't waste time proposing revisions to provisions which arise from the law. By encouraging Participants to confine their changes to CRADA Manual alternatives we reduce the review and approval time. Our information system IP Manager helps us efficiently track status, report, identify prior projects with a company.</p> <p>NF-WFOs: Use of IP Manager software to help us track progress of paperwork has reduced time where it is waiting for action on someone's desk. In addition, use of parallel processing techniques, simultaneous approvals from different offices at the lab and DOE has improved cycle times from SOW to Signature.</p>	<p>CRADAs: Not sure</p> <p>NF-WFOs: [unanswered]</p>

Lab	Other Streamlining Measures	Reduction of Cycle Time
Pantex	<p>NF-WFOs: Internal electronic tracking system is being used to facilitate transition of processing for multiple users, managing / coordinating required forms, and as a tickler for proposals requiring followup.</p>	<p>NF-WFOs: Electronic management has increased efficiency by 10%.</p>
SNL	<p>CRADAs: 1. Early engagement of the Labs CRADA Coordinator, PI, and the Business Development Personnel 2. Standard CRADA templates with instructions on how to complete documents 3. Experienced trained CRADA staff</p> <p>NF-WFOs: Electronic Work for Others (eWFO) system, standard FIA templates and guidance information for sponsors, agreement specialists and project managers. eWFO is used by NNSA / SSO to electronically approve agreement / proposal packages. The five approved FIA templates are regular agreement, foreign funded, state entity, federally funded, and no R&D.</p>	<p>CRADAs: By approximately 50% NF-WFOs: Approximately 50%</p>
SRNL	<p>CRADAs: When federal funding is flowing directly to a university partner and to SRNL, a MOA is used instead of a CRADA. Also conducting monthly meetings (“Business Support Planning Meetings”) between contractor and DOE to discuss anticipated agreements in advance. Also, a new initiative is proceeding – develop MOU type agreement with ongoing university partners to document agreeable terms and conditions with a goal to streamline negotiation on individual agreements. Also as a new measure – take advantage of options for advance payments described in CRADA Manual and DOE Accounting Handbook – specifically, as appropriate, accessing WN02 funding and in some cases utilizing M&O Contractor funding.</p>	<p>CRADAs: We believe these changes will reduce time by about 60 days, but we do not yet have enough data to be precise on the time savings.</p>

6. Other Best Practices (Labs)

Mentions of TTWG and the Battelle Commercialization Council are omitted.

Table 42: Other Best Practices (Labs)

Lab	Has your lab / facility developed (any other) “best practices” for the CRADA agreement execution process not already described above?	IF YES: Please estimate how much these best practices have reduced cycle time, if at all:
ANL	<p>CRADAs: Beyond the items previously mentioned, a centralized portal, CRADA Central, was developed in which the tools and information needed to initiate, process, and complete a CRADA were placed.</p> <p>NF-WFOs: PARIS System has agreement approval, formats and threads.</p>	<p>CRADAs: Unsure</p> <p>NF-WFOs: 1 to 2 days</p>
LBNL	<p>NF-WFOs:</p> <ul style="list-style-type: none"> We send our agreements out with the proposal so the sponsor can begin reviewing before a funding decision is made and they get a sense of the DOE terms and conditions. We do not have any internal legal review. The WFO office deals with DOE legal directly. We have each contracts Officer sign their agreements without management review (up to their delegation). 	<p>NF-WFOs: [unanswered]</p>
LLNL	<p>CRADAs:</p> <ul style="list-style-type: none"> We’ve attempted to adapt our procedures, through the development of standard processes and templates, to ensure that the necessary information for each approval step has been identified, captured and provided to the reviewers to aid them in their review processes. Our JWS and SOW templates include instructions on what is required for each section. 	<p>CRADAs: Our cycle time has been reduced by about 20 days.</p>
NREL	<p>CRADAs: ... We stay current with the other labs by benchmarking on use of IP Manager, ways to educate researchers on agreement practices, intellectual property protection, and setting expectations with industry partners.</p> <p>NF-WFOs: [Same as above]</p>	<p>CRADAs: Reduction of cycle time: estimated 30 days.</p> <p>NF-WFOs: Estimated cycle time reduction: 20 days.</p>
Pantex	<p>NF-WFOs:</p> <ol style="list-style-type: none"> Developed WFO Business Growth Plan ... allows us the flexibility to focus our growth in certain areas of expertise, while allowing for adjustments in areas that require additional focus. Direct sponsor contact with SME organization – Vendors have direct contact with SME organizations in preparation of proposals, which provides accuracy and increases process timeliness 	<p>NF-WFOs:</p> <ol style="list-style-type: none"> [unanswered] by ~3-7 days.
PNNL	<p>CRADAs: The Laboratory Director has delegated authority to sign CRADAs to the Associate Laboratory Directors, who are usually more accessible than the Lab Director. This possibly shortens the cycle time for entering into CRADAs.</p>	<p>CRADAs: Unsure</p>
SNL	<p>CRADAs:</p> <ul style="list-style-type: none"> Corporate Procedure for roles and responsibilities and processing of CRADAs. Sandia CRADA office has developed a good working relationship with the DOE / NNSA / Sandia Site Office Tech Transfer Program group and the Contracting Officer (CO). The CRADA office provides the CO with a CRADA Prioritization spreadsheet on an “as needed” basis. Sandia provides early notification of the DOE / NNSA Program Office and the CO of agreements that may warrant special attention. Notification provided instead of “request for approval” to some internal Sandia operations (e.g. Counterintelligence notification memo) of a CRADA transaction in process. <p>NF-WFOs:</p> <ul style="list-style-type: none"> Internal business school training courses, Work for Others Manual, job aids, corporate procedures. Sandia WFO / NFE / FIA office developed a good working relationship with the DOE / NNSA / Sandia Site Office Contracting Officer (CO). The WFO / NFE / FIA office provides the CO with the CRADA Prioritization spreadsheet. Early notification of the DOE / NNSA Program Office and the CO of agreements that may warrant special attention. Notification instead of approval by some internal Sandia operations (e.g. Counterintelligence notification memo). 	<p>CRADAs: Unsure</p> <p>NF-WFOs: [unanswered]</p>
SRNL	<p>CRADAs: Providing detailed, but brief, written explanations of the CRADA process to potential partners. This helps frame expectations; while this may have a minimal effect on cycle time it has a huge impact on perception of the laboratory as being organized and customer focused.</p>	<p>CRADAs: [minimal, see left]</p>

7. Site Office – Best Practices

Table 43: Streamlining Tools/Processes Used by Site Offices and Cycle Time Reduction

Site Office	Has your Site Office developed any tools or processes that contribute significantly to streamlining the CRADA agreement approval process? (Other best practices noted as "General" below)	IF YES: Please estimate how much these tools or processes have reduced cycle time at your Site Office, if at all:
BNL	<p>CRADAs: The Lab now sends JWS for approval before CRADA if possible, use of emailing all documents for review instead of waiting for hard copies, parallel reviews.</p> <p>NF-WFOs: The acceptance of tailored "model" agreements help reduce processing time and helps with the relationship between the sponsor and the Laboratory. Also, we do not require the development of a new proposal package for continuation of work, unless the period of performance was unanticipated originally or the scope of work has changed substantively.</p>	<p>CRADAs: All of these have reduced cycle time, could not tell how many days.</p> <p>NF-WFOs: [unanswered]</p>
INL	<p>CRADAs: Term and condition templates [templates?] have been agreed upon by both the contractor [and] DOE-ID lawyers.</p> <p>NF-WFOs: Technical Service Agreements</p>	<p>CRADAs: 2 to 3 days</p> <p>NF-WFOs: 5 calendar days / action</p>
LBNL	<p>CRADAs: The Lab has a DOE approved laboratory model CRADA, which covers specific requirements the M&O Contractor may require.</p> <p>NF-WFOs: Laboratory has 6 standard WFOA models that mostly differ on IP provisions. In addition, a one page form is used by lab identifying what agreement is being used and why. This may require signature of IP attorney depending on situation.</p>	<p>CRADAs: This significantly reduces review time since the Lab only points out the modifications to laboratory model.</p> <p>NF-WFOs: [unanswered]</p>
LLNL	<p>CRADAs: 1. All communications, including the approval letter, is done via email. There are no paper trails. Use of e-mail speeds the process. 2. Formal written processes are in place to enhance effectiveness.</p> <p>NF-WFOs:</p> <ol style="list-style-type: none"> 1. Identification by LSO of systemic / repetitive WFO proposal issues. Periodic meetings are held to discuss these issues with the goal of eliminating them. 2. Paperless environment at LSO facilitated by eAWP (online electronic approval system) developed by LLNL. This cuts down on the amount of administrative time required by LSO personnel. 3. Formal written processes are in place to enhance effectiveness. 	<p>CRADAs:</p> <ol style="list-style-type: none"> 1. 3 days 2. Difficult to say <p>NF-WFOs:</p> <ol style="list-style-type: none"> 1. 3 to 10 days 2. 1 to 2 days 3. Difficult to say
NREL	<p>CRADAs: The laboratory is in the final steps of developing an electronic system that will workflow all the processes involved with the work for others program.</p> <p>NF-WFOs:</p> <ul style="list-style-type: none"> • We are in the process of implementing an electronic work flow process for the Work for Others Process. • The Technical Service Agreement (TSA) is used when the project will not have any intellectual property. The terms and conditions of the TSA have been Pre-approved for certain work scope up to \$250,000 with a period of performance not to exceed three years. The laboratory is not required to have each TSA reviewed by Golden. • The Analytical Service Agreement (ASA) is used for projects that involve the use of standard laboratory equipment. The terms and conditions of the ASA have been pre-approved for scope up to \$25,000 with a period of performance no longer than three months 	<p>CRADAs: We expect to see a 30 – 40% process improvement time from our recorded process time from fiscal year 2008. We are currently seeing [the results] of the improvements due to other process improvements that have been implemented.</p> <p>NF-WFOs: re electronic workflow process: We are currently implementing this system and will not have this information until after the next fiscal year.</p>

Site Office	Has your Site Office developed any tools or processes that contribute significantly to streamlining the CRADA agreement approval process? (Other best practices noted as "General" below)	IF YES: Please estimate how much these tools or processes have reduced cycle time at your Site Office, if at all:
ORNL	<p>CRADAs: We use an electronic system called eWFO to approve JWSs, which eliminates much of the paper and provides electronic approval. Our CRADA agreement process is still essentially paper based but we use facsimile and email to route the document for approval so it moves quickly.</p> <p>NF-WFOs: We use an electronic system called eWFO to approve WFO proposal packages, and funding packages, which eliminates much of the paper and provides electronic approval. Our WFO agreement process is still essentially paper based but we use facsimile and email to route the document for approval so it moves quickly.</p> <p>Other, General Best Practice: Communication. We believe that we have a good relationship with our contractor with good communication. Monthly technology transfer operational awareness meetings are held at which CRADAs and WFO projects are highlighted. If the contractor anticipates possible changes to the terms and conditions of the CRADA agreement, they vet these informally with the DOE patent counsel prior to official submission of the agreement to DOE. (Unsure of reduction of cycle times.)</p>	<p>CRADAs: Left blank</p> <p>NF-WFOs: The eWFO system was implemented in January 2005. In the previous 6 years another electronic system was in use. These systems have significantly reduced process times, provided electronic approval and facilitated a more comprehensive and accurate review of WFO proposals and funding</p>
Pantex	<p>NF-WFOs: PXSO has assigned a WFO Program manager to manage and track WFO Project; also, PXSO is implementing the use of performance indicators that will allow the PXSO WFO program manager to identify project issues.</p>	<p>NF-WFOs: [unanswered]</p>
PNNL	<p>General Best Practice: It is not uncommon for PNNL to work with PNSO to resolve potential issues or in most cases possible language variations to the Modular CRADA.</p>	<p>General Best Practice: This seems to help with the CRADA approval cycle. On the average, it could be from one to seven calendar day(s).</p>
PPPL	<p>CRADAs and NF-WFOs: We have incorporated the use of e-mail for much of our correspondence with all parties. This gives us the ability to save on paper, postage and time of execution.</p>	<p>[not specified]</p>
SNL	<p>CRADAs: Electronically (email) submitting and approving JWS / CRADA agreement.</p> <p>NF-WFOs: Future plans are to have the NF-WFO reviewed / approved electronically.</p>	<p>CRADAs: Unsure how much cycle time has been reduced. But, agreements sent electronically for review / approval can be forwarded on to the next person without having to carry a file from office to office and reduce the time a file may sit on someone's desk.</p>
Y-12	<p>NF-WFOs: the e-WFO data system is used to review and approved federal and non-federal proposals and funding documents for both Y-12 and Y-12 Site Office. It is part of the cycle time reduction issues we had in the past. I consider it to be a best practice.</p>	<p>NF-WFOs: 5 days</p>

E. Additional Data

1. Agreements Processed

Comparisons of survey data and Robert Hamilton's (ORNL) data are shown in the table below. It is beyond of the scope of this study to analyze the number of agreements in further detail.

Table 44: FY09 Agreement Counts

Laboratory / Facility	New CRADAs (Hamilton)	New CRADAs (Questionnaire)	New NF-WFOs (Hamilton)	New NF-WFOs (Questionnaire)
Ames Laboratory	2	1	1	1
Argonne National Laboratory (ANL)	4	4	77	61
Brookhaven National Laboratory (BNL)	8	6	15	18
Idaho National Laboratory (INL)	10	10	25	48
Lawrence Berkeley National Laboratory (LBNL)	7	7	161	161
Lawrence Livermore National Laboratory (LLNL)	8	8	127	127
Los Alamos National Laboratory (LANL)	21	21	58	58
National Energy Technology Laboratory (NETL)	6	6	0	N/A
National Renewable Energy Laboratory (NREL)	50	49	55	55
Oak Ridge National Laboratory (ORNL)	12	10	85	88
Pacific Northwest National Laboratory (PNNL)	14	14	21	25
Pantex Plant	0	N/A	19	10
Princeton Plasma Physics Laboratory (PPPL)	0	0	1	1
Sandia National Laboratories (SNL)	20	20	73	83
Savannah River National Laboratory (SRNL)	4	4	8	8
Thomas Jefferson National Accelerator Facility (TJ)	4	7	1	2
Y-12 National Security Complex (Y12)	1	1	6	19

Data Source: Robert Hamilton, DOE Oak Ridge Office, October 2009

2. Comments on Purpose of JWS (CRADAs, Lab Respondents)

Table 45: Comments on Purpose of JWS (Labs)

Lab	Please describe the general information included in the JWS, the role of the JWS document in the CRADA agreement execution process and how the JWS gets approved.
Ames	To provide the DOE Site Office with pertinent information when reviewing the CRADA for their signature.
ANL	The TDC submits the JWS (which is the questionnaire and Statement of Work combined) along with a Participant completed pre-agreement certification to the DOE ASO for approval. The DOE ASO reviews and approves the JWS (or requests additional information which we provide to them). DOE then returns the approved JWS to TDC. <i>[Template attached]</i>
BNL	BNL's JWS documents compliance with DOE requirements such as: CRADA benefits to DOE and Participant, identifies the DOE Program Office, states the funding profile, includes the SOW, Background IP, Human or animal subjects, NEPA, COI, Export Control, Sensitive or Classified Information, Fairness of Opportunity, Multi-Lab CRADA, and states which Model CRADA will apply. JWS requires approval by the PI, Dept. Administrator, Dept. Chair, Budget Office, and Research Partnerships.
INL	The JWS is submitted to DOE when the final CRADA is submitted to DOE – the JWS includes funding, schedule, benefits / impacts to parties, OSTI abstract, business type, export control, classification, fairness of opportunity, ES&H, COI, changes to standard template.
LBNL	The JWS follows the model in DOE O 483.1. It is approved by DOE as part of the approval process. Its approved by the Manger, OSPIP (author of this survey).
LLNL	The LLNL JWS follows the JWS format in DOE M 483.1-1, which includes a summary of the scope, schedule, cost of the work, and any special considerations. It is considered the "contract" between DOE and LLNL and is executed by the LLNL Director. The JWS and CRADA are submitted together as a package to DOE / NNSA for review and approval.
LANL	See attached <i>[Provided a LANL JWS as attachment]</i>
NREL	The Joint Work Statement contains the title, an abstract, the Participant name and address, Participant type (foreign, university, small, large, state and local government), purpose, schedule (overall period of performance) task descriptions and estimated task completion dates, funding table, DOE Mission area to benefit from the CRADA, CRADA benefit to DOE, Participant and U.S. taxpayer, DOE Program manager name, B&R Code, responses to Special Considerations questions.
ORNL	JWS contains all critical project data; permits the DOE field office or headquarters approver to have all the information necessary to determine if it is appropriate to approved this project. In many cases, the JWS is approved by the Oak Ridge Operations Office personnel; in other cases it requires DOE HQ approval.
PNNL	When we send our CRADA package to PNSO (DOE) to be approved, we also send a completed JWS. We utilize the JWS more as a summary document of the entire CRADA package. The JWS lists the project title, summary of the project, CRADA Participant address information and company type (i.e., small business, not for profit, etc.), funding information, DOE mission area, benefit statements, DOE program manager, B&R Code, special considerations re: form CRADA, how we met fairness of opportunity, whether human or animal subjects will be used, whether there are any OCI issues, whether we've met ES&H requirements, whether there are any export control issues, and whether CRADA Participant required any substantive / material revisions to the CRADA documents. ///// PNSO actually signs our CRADAs rather than "approves" the JWS.
PPPL	THE JSW is also referred to as the Statement of Work, and defines what tasks each partner will perform, the time period of the CRADA, the budget for each partner, the contact information for the P. I's and provides an overall description of the project.
SNL	The Joint Work Statement (JWS) for CRADAs and Supplemental Joint Work Statement (SJWS) for Project Task Statement (PTS, under an Umbrella CRADA) are analogous to the Determinations and Certifications (Ds&Cs) in a Work for Others agreement. The information contained in a JWS / SJWS is provided by the Sandia Principal Investigator. JWS / SJWS is approved by Sandia Manager of WFO / CRADA Agreements organization. The JWS / SJWS is included in the review and approval package submitted to DOE / NNSA. When DOE / NNSA approves a CRADA / PTS, the JWS / SJWS is also approved. Since the JWS / SJWS is considered Sandia proprietary information, it is not part of the execution package that is transmitted to the CRADA Partner for signature. High level list of the JWS / SJWS elements: • Project Duration (in project months) ; • CRADA / PTS Funding source(s) details • Participant In-kind contribution statement; • Benefits to DOE / NNSA missions / programs and to the Participant, Industry, Taxpayer • Technical Area; • Participant Business Type (including U.S. or foreign owned / controlled) • Export Control determination, Classification, any Foreign Nationals (Sandia or Participant); • Fairness of Opportunity statement • Subcontracting details (if applicable); • ES&H / NEPA information • Conflict of Interest issues (if applicable); • Sandia Background Intellectual Property list (same as stated in CRADA / PTS) • Other Miscellaneous questions: Purchased equipment cost, negative impact, type of research (involving human data, pathological specimens, animal subjects / tissue), facilities construction / modification, external JWS documents. Details are provided only if applicable.

Lab	Please describe the general information included in the JWS, the role of the JWS document in the CRADA agreement execution process and how the JWS gets approved.
SRNL	The JWS is a proposal prepared by the TTO in conjunction with the CRADA participant describing the purpose, scope, schedule and estimated cost of the CRADA; assigning responsibilities among the laboratory and any other party or parties to the proposed agreement. The JWS package consists of the JWS, a cost estimate prepared by SRNL Project Controls (1), the U.S. Competitiveness Work Sheet and the CRADA Certification including Foreign National Information. No real value is provided by this advance approval, but conceptually provides DOE concurrence before proceeding with negotiations. Approved before routing CRADA for approval.
TJL	The JWS contains the technical purpose and scope of the effort. It also specifies the tasks, schedule, and roles and responsibilities of the parties (JLab and Partners). It is an appendix and attachment to the CRADA and must be approved by the P.I.s of the effort prior to obtaining any other approval of the Laboratory.



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