

WRITING STATEMENTS OF WORK

WHAT DO I NEED TO KNOW?

BACKGROUND

Developing a needs or requirements document can be a very complex and challenging task. Requirements documents include statements of work, standards, specifications, and other documents mandated for use by law. The statement of work (SOW) is the most challenging of the requirements documents. If the needs are not well described, it is highly likely that a contractor will have difficulty producing what NASA needs to support its mission. As a result, this guidance is being issued to assist technical and program personnel in writing the most difficult requirements document, the statement of work.

Requirements documents can be written in different ways, generally following one of three basic approaches to describe the essential characteristics of the product or service needed. They include:

1. *Design oriented.* Design oriented documents tell the contractor how to do the work. It may include precise measurements, tolerances, materials, in-process and finished product tests, quality control, inspection requirements, and other Government requirements that control the processes of the contractor. There are wide variances in application of this type of SOW. It is as varied as the requirements that are acquired under them. The point is that the Government, to a large degree, requires the contractor to follow the Government's way of performing the task or making a product. This causes the risk of performance to be borne by the Government. For instance, if the contractor builds and/or performs a task and follows the Government's SOW exactly, and the product or service is faulty, who is to blame? Absent malfeasance or shoddy workmanship it is the Government's process that the contractor was implementing so the contractor cannot be faulted. Although this type of SOW is primarily used for manufacturing or construction, other work efforts may be described in this rigid format.

Example: If an agency requires a water purification system, a design document would include blueprints for the components of the system and may even include the type of materials to use when building the components.

2. *Performance oriented.* Performance oriented documents set forth operational characteristics. Design, measurements, and other specific details are not stated or considered important as long as the performance requirement is met. When an item is purchased under a performance requirement, the contractor accepts general responsibility for design, engineering, and achievement of the statement performance requirements.

Example: For a water purification system, a performance document might establish the level of purity, the power consumption, the throughput, etc. that the system must achieve.

3. *Functional.* Functional requirements describe the work to be performed in terms of end purpose or the Government's ultimate objective, rather than the way in which the work is to be performed. Functional requirements may be thought of as a type of performance-oriented document.

Example: For a water purification system, a functional requirement would only state the need to purify water without establishing a method or other benchmarks.

Performance-based statements of work are the preferred method of stating needs. Keep in mind that few requirements documents are purely performance-oriented or purely design or functional based. A performance based statement of work structures all aspects of an acquisition around the purpose of the work to be performed and does not dictate how the work is to be accomplished. It is written to ensure that contractors are given the freedom to determine how to meet the Government's performance objectives and provides for payment only when the results meet or exceed these objectives. It maximizes contractor control of work processes and allows for innovation in approaching various work requirements. By focusing on required outcomes or results and not methods of performance or processes, the Government's risk is reduced.

A well-written SOW enhances the opportunity for all potential offerors to compete equally for Government contracts and serves as the standard for determining if the contractor meets the stated performance requirements.

DEFINITIONS

A *statement of work* (SOW) is portion of a contract which establishes and defines all non-specification requirements for contractor's efforts either directly or with the use of specific cited documents.

Performance-based acquisition (PBA) means an acquisition structured around the results to be achieved as opposed to the manner by which the work is to be performed.

A *performance work statement* (PWS) is a statement of work for performance-based acquisitions that describes the required results in clear, specific and objective terms with measurable outcomes.

A *statement of objectives* (SOO) is a Government-prepared document incorporated into the solicitation that states the overall performance objectives. It is used in solicitations when the

Government intends to provide the maximum flexibility to each offeror to propose an innovative approach.

GUIDELINES FOR VARIOUS TYPES OF PERFORMANCE WORK STATEMENTS

1. ROUTINE SERVICES AND NON-ROUTINE SERVICES

When contracting for services of a routine or non-routine nature, whether high or low “tech” (e.g., engineering, computer service, guard service or janitorial), it is essential to avoid under-specifying NASA’s requirements. Work inadvertently omitted may later be construed to be outside the requirements of the contract and could require a contract change and increased costs. Even worse, omissions outside the scope of the contract could require a significant effort from NASA such as a new competition or a Justification for Other Than Full and Open Competition (JOFOC).

The SOW for services is usually written to require output to ensure work is completed at an acceptable level. In that event, NASA may be obligated to accept whatever product or services the contractor provides, or make changes in the work requirements and pay more to acquire what is actually needed.

2. INDEFINITE DELIVERY INDEFINITE QUANTITY TYPE CONTRACTS

SOWs for Indefinite Delivery Indefinite Quantity (IDIQ) acquisitions are written somewhat differently but still have a performance based flavor about them. Services or products are acquired via individual orders issued by the Contracting Officer. The SOWs are usually very broad and describe the general nature, scope of complexity of the services or products and the individual order will then further define the specific need, still in a performance based manner. It is important that the SOW be broad enough to assure all potential work items that might be issued through a task are sufficiently covered. If the task’s activity is outside of the SOW scope then it cannot be performed under this contract. At the same time, the SOW must be detailed enough that the offeror knows what skill mix to propose along with the magnitude of the labor force and any other direct costs that might be required to support subsequent tasks.

3. HARDWARE OR END ITEM DELIVERABLES

The SOW describes, at the highest practicable level, what the end product must do (performance) and any critical constraints (e.g., size, weight). It eliminates process-oriented (how to) requirements and includes only minimally essential reporting requirements. Actual demonstrated performance of the end item is normally one of the measures – in some cases the only measure.

4. MAJOR SYSTEMS CONTRACTS

Contracts for definition and development of major systems have short, concise outcome SOWs that do not necessarily go into great detail. There is usually a specification/contract deliverable requirements list associated with these contracts, which may contain specific requirements for the project(s). The SOW must, however, state all requirements necessary to complete each task element of the Work Breakdown Structure and be complete enough to allow the contractor to generate all information necessary to design, prototype, test, and verify.

A good approach for the acquisition of major systems is to acquire the effort in phases, with each phase having a limited but clear objective. This approach also is a safeguard against committing scarce resources to an effort prematurely.

For study and preliminary definition contracts, the SOW must allow the contractor wide latitude for creativity, innovation and research. Describe efforts necessary to supplement existing information and bring present knowledge to a point where further detailed study for the most promising systems can be made.

5. RESEARCH & DEVELOPMENT (R&D) CONTRACTS

Most R&D contracts are directed toward specified objectives and knowledge where the work or methods cannot be precisely described in advance. It is difficult to judge the probabilities of ultimate success or required effort for technical approaches. R&D SOWs can be difficult to write if the contract's objectives are not defined sufficiently, yet they must be flexible enough to allow contractors freedom to exercise innovation and creativity. The most important element is to clearly define the requirements and/or the schedule such that the performance of the contractor is measurable.

6. BASIC RESEARCH

In basic research, results cannot be determined in advance and often no deliverable is required except for a final report. In that case, the performance standards may be focused on timeliness, organization and thoroughness of the report, comprehensive bibliography, etc. These performance standards shall be used to "gate" contractor eligibility for fee, if any. When the principle purpose of the research is for the direct benefit or use of NASA, a contract shall be used. When not a direct benefit or use to NASA, the proper procurement vehicle is usually a grant or cooperative agreement.

BEST PRACTICES

It is good to release advance versions, or drafts, of your technical documents for industry comment. It promotes competition and a dialogue between us and potential offerors to improve the understanding of our requirements and ultimately a superior proposal. However it is important to protect the integrity of the procurement process therefore any information that is released must be released to all potential offerors. You should work with your Contracting Officer prior to releasing documents for comments.

Take advantage of another organization's lessons learned and avoid mistakes made in the past. In the early steps of planning, communicate with other organizations to gain insight on similar requirements. Check with other technical offices that procured services/items of a similar nature and check with other procurement offices. Be prepared with specific questions concerning deliverables, services, etc., and what measures they used in determining success. Find out what the organization has learned. Observe how successful its approach has been. Then look at the information gained and ask "what useful and relevant information did I get?"

ATTACHMENTS

- **Tips for Writing the Statement of Work (SOW).** This document provides helpful tips to consider when drafting the SOW.
- **Statement of Work (SOW) Checklist.** This document can be used after the SOW is written to determine if major areas of the SOW are properly and adequately addressed.
- **Statement of Work (SOW) Template.** This document provides an outline of an SOW. This is not a required format as not all sections and items may apply to a specific requirement or additional items may need to be added.

TIPS FOR WRITING THE STATEMENT OF WORK (SOW)

1. The **SOW must be understood not only by the writer but by the readers**. It will be read and interpreted by a variety of people from diverse disciplines such as attorneys, acquisition personnel, cost estimators, accountants, technical specialists, engineers, etc. A fundamental legal principle is that because the Government is the drafter, any ambiguity usually is construed against the Government by the courts. So, avoid the potential for two different interpretations because the courts will side with the contractor.
2. **Strive for clarity**. Keep sentences short, to the point and use exact descriptions.
3. **Use active verbs** such as analyze, audit, design, develop, evaluate, investigate, observe, perform, produce. For example, “conduct the experiment and produce a report describing and interpreting the results.”
4. To reduce the possibility of misinterpretation, **terminology must be consistent**. The same words and phrases must be used when describing the same requirements. (Example: engineering model, protoflight unit)
5. When contracting for services, NASA must **ensure that any final Agency action reflects the informed, independent judgment of NASA officials**. Contractors must not be allowed to perform inherently Governmental functions as defined in OFPP Policy Letter 92-1, Inherently Governmental Functions. These functions include those activities that require either the exercise of discretion in applying Government authority or the making of value judgments in forming decisions for the Government.
6. **Avoid redundancy**. Redundancy can reduce clarity, thereby increasing the possibility for ambiguity and contradiction. If modification or exceptions are required, make specific reference to the applicable portions and describe the change.
7. **Avoid vague/inexact words and generalizations**. They are open to so many interpretations that they become meaningless. Phrases such as “securely mounted”, “properly assembled” and “carefully performed” are examples of unenforceable language. Avoid catch-all and open-ended phrases, such as “is common practice in the industry,” “as directed,” “as needed,” or “subject to approval.”
8. **Avoid using “any”, “either,” or “and/or”** unless NASA wants to give the contractor a choice in what must be done. Also, avoid the use of “etc.,” because the reader doesn’t have any idea of the items that could be missing.
9. **Know when to use “shall” versus “will”**. Use the verb “shall” for work to be completed by the contractor since this is binding. **Avoid “should” or “may”** because they leave the decision for action up to the contractor. Use the verb “will” when speaking about Government’s actions.

10. **Include definitions that provide a common basis for understanding** between the contractor and NASA. Ensure each “term of art” has only one universally understood meaning; otherwise define it.
11. **Use abbreviations or acronyms only after spelling them out** the first time they are referenced. When there are many, it is advisable to provide an appendix.
12. **Any document referenced in the solicitation must be either furnished with the solicitation or available at a location identified in the solicitation.** The date or version of each document must also be specified, not listed as “version in effect on date of award.”
13. **Do not duplicate material in the SOW that the Contracting Officer (CO) will include** in other parts of the contract. Consult the CO for guidance during the early stages of SOW preparation.
14. The **Project Manager should indicate, if appropriate, desired design output, verification, and how design changes will be managed.** The inspection portion shall address inspection and testing requirements. It may be helpful to have the contractor develop a quality plan or documented procedures that will be used to inspect and test the product or identify non-conforming items.
15. **Do not use** the words “assist” or “advise”.

STATEMENT OF WORK (SOW) CHECKLIST

The following checklist should be reviewed prior to forwarding the SOW for approval. It is a guide only and items should be added or deleted to tailor it to the specific document.

- 1) Does the scope of work section emphasize the most important aspects (i.e., an overview) of the requirement rather than minor details?
- 2) Does the scope of work section convey the magnitude of the requirement and provide the reader with a basic understanding of the requirement?
- 3) Does the background section summarize historical information which is necessary to understand the current requirement? That is, will the offeror understand how and/or why the requirement evolved and where this requirement is headed, if appropriate?
- 4) Does the background section provide current and accurate facts?
- 5) Does the SOW use a performance based approach to the fullest extent possible instead of a design oriented approach?
- 6) Does the SOW identify only minimum requirements? That is, have “nice to haves” been eliminated?
- 7) Is the SOW too restrictive such that it will result in less competition?
- 8) Are the tasks (i.e., major and sub-tasks) in the SOW presented in chronological order or some logical order?
- 9) Is the SOW sufficiently detailed to permit both the Government and the contractor to estimate costs, to tabulate labor and other resources required to accomplish each task element? Will the contractors be able to prepare a sound technical and cost proposal?
- 10) Are sentences written so that there is no question of whether the contractor is obligated to perform specific tasks? (e.g., “the contractor shall do this work,” not “this work shall be required” – active vs. passive voice).
- 11) Are all terms used consistently throughout, and adequately defined, including “industry-wide” terms?
- 12) Are contractor responsibilities stated in such a way that the contractor knows what is required and the Government can tell whether the contractor has complied?
- 13) Are the performance standards or acceptance criteria:
 - a. necessary?
 - b. realistic?
 - c. specific?
 - d. verifiable?
 - e. objective?
 - f. measurable?
- 14) Are standards clear that make it possible to measure contractor performance?
- 15) Have all requirements for data been specified separately in a Data Requirements section? Have all extraneous data requirements been eliminated? Are requirements specified adequately to obtain sufficient data to permit competition for anticipated follow-on procurement?

- 16) Are all safety, reliability, quality assurance, and security requirements defined for the total life of the contract?
- 17) Does the SOW cover the requirements imposed on the contractor's quality system to ensure that products conform to requirements?
- 18) Does the SOW cover any design or process control requirements required by NASA?
- 19) Does the SOW cover any specific Government requirements for inspection and testing?
- 20) Does the SOW provide for corrective/preventive action by the contractor in the event the product delivered is non-conforming to the specified product?
- 21) Does the SOW establish a delivery schedule and proper quantities? (Note that the SOW should not include a delivery schedule or list of deliverables but may include, for clarity, significant milestones. The contract document will establish deliverables, a delivery schedule or period of performance.)
- 22) Does the SOW require the contractor to get permission from or provide something to someone other than the contracting officer or the contracting officer's technical representative? If so, have specific authorizations and instructions been provided to avoid contractual problems?
- 23) If elapsed time is used, does it specify either calendar or business days? Calendar days is easier to calculate but either can be used.
- 24) Have appropriate Government and industry standards been researched and referenced in the SOW, as necessary? Have requirements to use Government standards been limited to those where it is impractical to use non-Government standards? Have options been provided for proposers to recommend suitable replacement of Government standards with non-Government Standards?
 - Are the applicable documents properly cited?
 - Is the document really pertinent to the task?
 - If only portions of the document apply, have you clearly stated which portions apply?
 - Is it cross-referenced to the applicable SOW task element?

GENERAL

- 25) Has extraneous information been eliminated? (Ask the following questions to determine whether material should be included: Does it tell what the contractor is responsible for? Is it necessary in order for use to obtain the required results?)
- 26) Has the document been checked for format and grammar? Are subheadings compatible with the subject matter of the heading? Is the text compatible with the title?
- 27) Is a multi-decimal or alpha-numeric numbering system used in the SOW that can be cross-referenced to the Work Breakdown Structure (WBS)?
- 28) Does the SOW have page numbers?
- 29) Does the SOW have a version date or number?

STATEMENT OF WORK (SOW) TEMPLATE

Statement of Work (SOW)

Project: *{Insert title}*

GENERAL INFORMATION

- 1.0 **Scope of Work:** *This section provides a quick overview of what the requirements document covers.*
- 2.0 **Background:** *Describe the project history (if applicable) and the current environment or the need giving rise to this requirement.*
- 3.0 **Objective:** *Describe the overall effect the requirement will achieve.*

CONTRACTOR REQUIREMENTS

- 4.0 **Technical Requirements or Description of the Work:** *This section defines and explains the work to be performed. The work effort should be segregated into major tasks with a detailed description of what is to be achieved as opposed to the manner by which the work is to be performed. This section should be developed in an orderly progression and in sufficient detail to ensure the Government gets what it needs. Items to consider:*
 - *Main steps the contractor will complete and the sequence in which the work will be performed;*
 - *Use performance characteristics to the extent possible unless specific design details are necessary(e.g., type of material, electrical data, dimensions, size, capacity, principles of operation, restrictive conditions, and intended use);*
 - *Quality assurance requirements;*
 - *Inspection and acceptance criteria*
- 5.0 **Government Furnished Information:** *This could include any Government-provided data or information such as manuals, drawings, and test data. Government furnished property should not be listed in the SOW but can be referenced as a separate attachment.*
- 6.0 **Applicable Documents:** *This section should identify appropriate specifications, standards and other documents that are applicable to the effort to be performed.*
- 7.0 **Security Requirements:** *Specify security requirements that apply to the contract performance. Specify the level of clearances required.*