

Command or BRAC Name

City, State Acronym

[Version (Internal Draft, Draft, Draft Final, Final)]

Combined Work Plan/Sampling and Analysis Plan (WP/SAP)

[Document Title]

{Insert Site (AOR, SWMU, UST, UXO) Number(s)}

[Insert Installation or Facility Name]

[Month Name YYYY]

[DISTRIBUTION STATEMENT]



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[Month Year]

DCN: [SW DCN format ABCD-NNNN-NNNN-NNNN]

Prepared for:

Department of the Navy

Naval Facilities Engineering Systems Command **Southwest**

Base Realignment and Closure Program Management Office West

Street Address

City, State, Zip Code

Prepared by:

Contractor name

Joint Venture Names if Necessary

Street Address

City, State, Zip Code

Contract Number: [XXXXXX-XX-X-XXXX, CTO 0000]

**[Contract Delivery Order Number]**

(Optional SMALL Contractor logo permitted on Title page ONLY)

GENERAL INSTRUCTIONS

*(Do not include these instructions or other green font text in the WP/SAP)*

The development of a combined Work Plan/Sampling and Analysis Plan (WP/SAP) aims to streamline efficiencies and optimize the review process for Remedial Project Managers (RPMs), contractors, and the regulatory agencies. By integrating both plans into a single document, redundancy of information is minimized saving time and resources. In addition, the combined WP/SAP allows for a better understanding of the overall project/investigation. With potentially a few exceptions (i.e., Military Munitions Response Program [MMRP] projects and radiological projects without sampling and analysis for chemical constituents), the combined WP/SAP template is applicable to all Environmental Restoration Program (ERP) projects within the Naval Facilities Engineering Systems Command Southwest (NAVFAC SW) Area of Responsibility (AOR), which are funded by the Environmental Restoration, Navy (ER,N) or the Base Realignment and Closure (BRAC) accounts.

The development of the WP/SAP template has been a collaborative effort between BRAC and NAVFAC SW technical and management staff including a selected group of Remedial Technical Managers (RTMs), RPMs, Quality Assurance Officers (QAOs), and environmental management. This effort provided an opportunity to review and integrate certain optimization elements outlined in the 2012 Intergovernmental Data Quality Task Force (IDQTF) Optimized Uniform Federal Policy for Quality Assurance Project Plans (UFP-QAPP) Worksheets (WS). Additionally, certain modifications have been made to the order and numbering of worksheets within the combined WP/SAP template (see WS #2 crosswalk table), while maintaining their essential content. To maintain the same numbering sequence of certain worksheets related to data acquisition and analytical information, W#17, WS#27, and WS#32 as in the original UFP-QAPP template workbook have been left blank and must be included in the WP/SAP document. These changes were implemented to ensure a better and more logical flow of information, particularly in relation to the work plan elements. By reordering the worksheets, the WP/SAP template now presents information in a sequence that aligns with the logical progression of project workflow and the correlation between the worksheets. This provides clarity and helps streamline the overall review process.

Because this is a combined document, it must have an applicably licensed (i.e. for site locality) Professional Geologist (PG) and/or Professional Engineer (PE Civil) signatory, to cover responsibility for WP geologic and engineering content, as well as Quality Control (QC) signatories to cover responsibility for chemistry content. The submitting Project Team including the Professional Geologist and/or Professional Engineer, must fully review and sign the WP/SAP before submitting it for QAO review. The QAO is not responsible for project design completeness for its intended purpose, or any geologic or engineering content of the combined WP/SAP document.

Closely related packages and supportive documentation that don't easily fit into a group of tables or figures and are not stand-alone documents are to be included as Appendices (e.g. Laboratory certifications, Field Standard Operating Procedures (SOPs), diagrams, forms, photographs, plates, etc.). Supplementary stand-alone documents (e.g. Health and Safety Plan, Traffic Control Plan, etc.), should be incorporated as Attachments and will need to be reviewed outside the QAO Naval Installation Restoration Information Solution (NIRIS) review of the WP/SAP. Laboratory SOPs are considered proprietary information and are to be uploaded to NIRIS as a separate deliverable.

**EXECUTIVE SUMMARY**

Characterize the content of the WP/SAP. It should be a brief summary of the WP/SAP and include relevant background information (i.e., regulatory, conceptual site model [CSM]), the scope of the project including the goals/objectives of the proposed investigation. Include highlights of the planned investigation and where they appear in the WP/SAP, if desired. Do not use the Executive Summary (ES) to present information that is not in the WP/SAP. The ES should contain only information that is in the WP/SAP.

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ACRONYMS AND ABBREVIATIONS

This list needs to be populated here with only project-specific acronyms and abbreviations and their definitions.

[TABLES](#Tables)

The Tables should be listed here and also appear toward the end of the document, in sequence immediately after the References. It may continue the current pagination, or may set up new pagination. For convenience, the subtitle above is linked to the divider page for the Tables.

[FIGURES](#Figures)

The Figures should be listed here and also appear toward the end of the document, in sequence immediately after the Tables. It may continue the current pagination, or may set up new pagination. For convenience, the subtitle above is linked to the divider page for the Figures.

[APPENDICES](#Appendices)

The Appendices should be listed here and also appear toward the end of the document, in sequence immediately after the Figures. It may continue the current pagination, or may set up new pagination. Closely related packages and supportive documentation that don't easily fit into a group of tables or figures and are not stand-alone documents (e.g. Field SOPs, Laboratory certifications, diagrams, forms, photographs, plates, etc.) are to be included as Appendices. Do not include Laboratory SOPs as an Appendix to the Combined WP/SAP. Laboratory SOPs are considered a separate deliverable that must be uploaded to NIRIS concurrently with the WP/SAP being submitted for review. For convenience, the subtitle above is linked to the divider page for the Appendices.

[ATTACHMENTS](#Attachments)

The Attachments should be listed here and also appear toward the end of the document, in sequence immediately after the Appendices. These are supplementary stand-alone documents (e.g., Health and Safety Plan, CQC Plan, Waste Management Plan, Traffic Control Plan, screenings, assessments). These documents commonly have their own pagination. List them beginning with “A.” Documents included as attachments need to be reviewed outside the QAO NIRIS SAP review module. For convenience, the subtitle above is linked to the divider page for the Attachments.

# WP/SAP Worksheet #1: Title and Approval Page

**(UFP-QAPP Manual Section 2.1)**

**[Document Version (Internal Draft, Draft, Draft Final, Final)]**

**COMBINED WORK PLAN/SAMPLING AND ANALYSIS PLAN**

**[Preparation Date-Day Month Year]**

**[Document Title – should reflect nature of project]**

**[Site Involved]**

**[Facility]**

**Prepared for:**

**Department of the Navy**

**[Name of Navy Organization]**

**[Address]**

**Prepared by:**

**[Preparer’s Name]**

**[Preparer’s Address]**

**[Preparer’s Telephone #]**

**Prepared under:**

**[Document Contract Number]**

**[Delivery Order/CTO]**

Review Signature: [Contractor Project Manager Signature]

[Printed Name/Title] Date

Approval Signature: [Contractor QAM Signature]

[Printed Name/Title] Date

Other Approval Signature: [Contractor Professional Geologist and/or Engineer Signature and License Type (PG, or PE Civil)]

[Printed Name/Title] Date

Other Approval Signature: [Navy QAO Signature]

[Printed Name/Title] Date

# WP/SAP Worksheet #2: Identifying Information

[**(UFP-QAPP Manual Section 2.2.4)**](http://www.epa.gov/fedfac/pdf/ufp_qapp_v1_0305.pdf#page=44)

This worksheet shall be completed with project-specific identifying information.

**Site Name/Number:**

**Operable Unit:**

**Contractor Name:**

**Contract Number:**

**Contract Title:**

**Work Assignment Number (optional):**

1. This combined Work Plan and Sampling and Analysis Plan (WP/SAP) was prepared in accordance with the requirements of the Intergovernmental Data Quality Task Force (IDQTF) *Uniform Federal Policy for Quality Assurance Project Plans (UFP-QAPP)* (IDQTF 2005), *Uniform Federal Policy for Quality Assurance Project Plans Optimized UFP-QAPP Worksheets* (IDQTF, 2012), and United States Environmental Protection Agency (EPA) *Guidance on Systematic Planning Using The Data Quality Objectives Process, EPA QA/G-4* (EPA 2006).

Identify any additional guidance used to prepare the WP/SAP.

1. Identify regulatory program:

RCRA, CERCLA, CWA etc.

1. This is a [project-specific or generic] WP/SAP.
2. List organizational partners (stakeholders) and identify the connection with lead organization:

| Organization Partners/Stakeholders | Connection | Date |
| --- | --- | --- |
|  |  |  |
|  |  |  |
|  |  |  |

1. Lead organization: [Naval Division or NAVFAC FEC]
2. If any WP/SAP elements and required information are not applicable to the project or provided elsewhere, then note the WP/SAP elements and provide an explanation for their exclusion or new location in the table below.

In the crosswalk table, provide an explanation of WP/SAP elements and required information that are not applicable to the project or are provided elsewhere, and in the appropriate WP/SAP worksheet(s), as necessary. In cases of a WP/SAP Addendum (or Field Change Requests [FCR]), this table should be used to reference the source of information (i.e., original WP/SAP) for the excluded worksheets that may still be in effect moving forward. This is particularly important when multiple post-WP/SAP documents apply to a project/investigation. References to UFP-QAPP Worksheets that have been renumbered or combined when developing this template are identified in the table. For SAP Addendums and FCRs, use this table to add applicable source document references (original SAP, FCR-01, FCR-02, etc.) for worksheets that remain in effect but have been excluded from the subject document.

**WP/SAP Worksheet #2: Identifying Information (continued)**

| **WP/SAP Worksheet #** | **Required Information**  **(**Applicable UFP-QAPP Manual sections cited at the top of each worksheet.) | **Crosswalk to Related Information** |
| --- | --- | --- |
| **A. Project Management and Organization** | | |
| *Documentation* | | |
| 1 | Title and Approval Page |  |
| 2 | Identifying Information |  |
| 3 | Project Organization and Distribution | UFP-QAPP Worksheets #3 and 5 |
| 4 | Project Personnel Sign-Off Sheet |  |
| *Project Organization* | | |
| 5 | Communication Pathways | UFP-QAPP Worksheet #6 |
| 6 | Personnel Responsibilities | UFP-QAPP Worksheet #7 |
| 7 | Special Personnel Training Requirements | UFP-QAPP Worksheet #8 |
| *Project Planning/Problem Definition* | | |
| 8 | Project Scoping Session Participants | UFP-QAPP Worksheet #9 |
| 9 | Conceptual Site Model | UFP-QAPP Worksheet #10 |
| 10 | Secondary Data, Criteria and Limitations | UFP-QAPP Worksheet #13 |
| 11 | Problem Definition, Project Quality Objectives/Systematic Planning Process |  |
| 12 | Sampling Design and Rationale | UFP-QAPP Worksheet #17 |
| 13 | Summary of Project Tasks | UFP-QAPP Worksheet #14 |
| 14 | Project Schedule/Timeline | UFP-QAPP Worksheet #16 |
| **B. Measurement/Data Acquisition** | | |
| 15 | Reference Limits and Evaluation |  |
| 16 | Field quality Control Samples | UFP-QAPP Worksheet #12 |
| 17 | Blank |  |
| 18 | Location-Specific Sampling Methods/ SOP Requirements |  |

**WP/SAP Worksheet #2: Identifying Information (continued)**

| **WP/SAP Worksheet #** | **Required Information** | **Crosswalk to Related Information** |
| --- | --- | --- |
| 19 | Field Sampling Requirements |  |
| 20 | Field QC Sample Summary |  |
| 21 | Project Sampling SOP References |  |
| 22 | Field Equipment Calibration, Maintenance, Testing, and Inspection |  |
| *Analytical Tasks* | | |
| 23 | Analytical SOP References |  |
| 24 | Analytical Instrument Calibration |  |
| 25 | Analytical Instrument and Equipment Maintenance, Testing, and Inspection |  |
| *Sample Collection* | | |
| 26 | Sample Handling, Custody and Disposal | UFP-QAPP Worksheets #26 and 27 |
| 27 | Blank |  |
| *Quality Control Samples* | | |
| 28 | Laboratory QC Samples |  |
| *Data Management Tasks* | | |
| 29 | Project Documents and Records |  |
| 30 | Analytical Services |  |
| **C. Assessment Oversight** | | |
| 31 | Assessments and Corrective Action | UFP-QAPP Worksheets #31 and 32 |
| 32 | Blank |  |
| 33 | QA Management Reports |  |
| **D. Data Review** | | |
| 34-36 | Data Verification and Validation (Steps I and IIa/Iib) Process | UFP-QAPP Worksheets #34 – 36 |
| 37 | Usability Assessment |  |

**Notes: 1**QA quality assurance

2QC quality control

3SOP standard operating procedure

4UFP-QAPP Uniform Federal Policy for Quality Assurance Project Plans

# WP/SAP Worksheets #3: Project Organization and WP/SAP Distribution

**(UFP-QAPP Manual Section 2.3 and 2.4)**

This worksheet identifies key project personnel, as well as lines of authority and lines of communication among the lead agency, prime contractor, subcontractors, and regulatory agencies. An example is provided below. For the purpose of the draft WP/SAP, it is permissible to show "TBD" in cases where roles have not been assigned; however, all key personnel must be identified in the final, approved WP/SAP. For the purpose of document control, this worksheet also can be used to document recipients of controlled copies of the WP/SAP. The draft QAPP, final QAPP, and any changes/revisions must be provided to all QAPP recipients shown on this chart. Use asterisks or other symbols to designate QAPP recipients. Contractors shown on this chart are responsible for document control within their organizations.

If any changes/amendments are made to the document, then the organization chart should be used to update all recipients of the revised version. Contractors should determine the distribution list in consultation with the Navy RPM. List those entities who receive copies of the Final WP/SAP, subsequent WP/SAP revisions, addenda, and amendments. The organization chart and distribution list are project-specific. Navy RPM input to this chart is needed to ensure appropriate regulatory agencies are included. This worksheet typically includes the following entities: Regulator/Stakeholder, Navy RPM, Contractor PM, QAO, Laboratory analytical coordinator, and laboratory and data validation subcontractors. Due to PII data restrictions, inclusion of private phone numbers and/or emails is not allowed. If commercial and/or Government phone number or email are not available, then use “N/A”.

EPA RPM

[Name & Phone]

[Email]

Navy RPM

[Name & Phone]

[Email]

State RPM

[Name & Phone]

[Email]

Navy Activity

Manager

[Name & Phone]

[Email]

Navy Quality Assurance Manager

[Name & Phone]

[Email]

e

Contractor Program Manager

[Name & Phone]

[Email]

Contractor QC Manager

[Name & Phone]

[Email]

Contractor Health and Safety Officer

[Name & Phone]

[Email]

Contractor Field Team Leader

[Name & Phone]

[Email]

Contractor Data Manager

[Name & Phone]

[Email]

Contractor Project Chemist

[Name & Phone]

[Email]

Data Validation Manager

[Name & Phone]

[Email]

Laboratory Manager

[Name & Phone]

[Email]

**KEY:**

**------- Line of Communication**

**\_\_\_\_\_ Line of Authority**

# WP/SAP Worksheet #4: Project Personnel Sign-Off Sheet

[**(UFP-QAPP Manual Section 2.3.2)**](http://www.epa.gov/fedfac/pdf/ufp_qapp_v1_0305.pdf#page=45)

Contractors or service providers shall use this worksheet to describe the process used for ensuring that all key personnel have read and understand the WP/SAP before performing the tasks as described. The description shall include the procedure to document the requirement, how the verification shall be obtained, and where the documentation will be maintained. A table format is encouraged for this purpose (see example from UFP-QAPP WS #4 below).

Key personnel may include:

* + Field Operations Leader
  + Field Task Technical Experts
  + Laboratory Project Manager
  + Data Validation Manager
  + Data Usability Technical Experts  
    /

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name | Organization/Title/Role | Telephone Number  (optional) | Signature/e-mail receipt | SAP Section Reviewed | Date SAP Read |
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# WP/SAP Worksheet #5: Communication Pathways

[**(UFP-QAPP Manual Section 2.4.2)**](http://www.epa.gov/fedfac/pdf/ufp_qapp_v1_0305.pdf#page=47)

Describe the communication pathways and modes of communication that will be used during the project, after the WP/SAP has been approved. The worksheet needs to promote an understanding of how project team members are exchanging key information. Twelve standard communication drivers are listed that must be addressed; additional drivers may be added as needed. Describe the procedures for soliciting and/or obtaining approval between project personnel, between different contractors, and between samplers and laboratory staff. Timing is the maximum amount of time allowed for the communication event to take place. Pathways describe the type of communication such as e-mail, phone, etc. A text format is acceptable in lieu of the table as long as the twelve key communication drivers and all criteria in the column headings are included.

The communication pathways for the WP/SAP are shown below.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Communication Drivers | Responsible Entity | Name | Phone Number | Procedure  (Timing, Pathway To/From, etc.) |
| Regulatory Agency Interface |  |  |  |  |
| Field Progress Reports |  |  |  |  |
| Stop Work due to Safety Issues |  |  |  |  |
| WP/SAP Changes prior to Field/ Laboratory work |  |  |  |  |
| WP/SAP Changes in the Field |  |  |  |  |
| Field Corrective Actions |  |  |  |  |
| Sample Receipt Variances |  |  |  |  |
| Reporting Lab Quality Variances |  |  |  |  |
| Analytical Corrective Actions |  |  |  |  |
| Reporting Data Validation Issues |  |  |  |  |
| Data Validation Corrective Actions |  |  |  |  |
| WP/SAP Addendums and Field Change Requests (FCRs) |  |  |  |  |

# WP/SAP Worksheet #6: Personnel Responsibilities

**([UFP-QAPP Manual Section 2.4.3)](http://www.epa.gov/fedfac/pdf/ufp_qapp_v1_0305.pdf" \l "page=49)**

Identify key project personnel associated with each organization, contractor, and subcontractor participating in responsible roles; discuss their specific roles and responsibilities. Include additional information as needed. Key personnel may include:

* data users
* decision-makers
* project managers
* QA officers, project contacts for organizations involved in the project
* project health and safety officers
* geotechnical engineers and hydrogeologists
* field operation personnel
* analytical services
* data reviewers.

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Title/Role | Organizational Affiliation | Responsibilities |
|  |  |  |  |
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# WP/SAP Worksheet #7: Special Personnel Training Requirements

[**(UFP-QAPP Manual Section 2.4.4)**](http://www.epa.gov/fedfac/pdf/ufp_qapp_v1_0305.pdf#page=50)

The following table is used to identify and describe any specialized/non-routine project-specific training requirements or certifications needed by personnel in order to successfully complete the project or task including training associated with performance of biological and archeological monitoring during investigation activities. Safety training is **not** considered specialized training; the OPNAV 5090.1 training requirements represent routine, minimum requirements that are mandatory for all Department of the Navy projects. It is acceptable to add additional text here explaining routine training requirements. Where appropriate, include explanatory text discussing how specialized training will be provided and how the necessary skills will be assured and documented (training should be documented for personnel, but this documentation doesn't need to be included in the WP/SAP). For example, if the project requires the use of an XRF instrument, the sampler must be trained in its proper use. If training records and/or certificates are on file elsewhere, document their location in the location column. If training records and/or certificates do not exist or are not available, then this should be noted.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Project Function | Specialized Training By Title or Description of Course | Training Provider | Training Date | Personnel/Groups Receiving Training | Personnel Titles/ Organizational Affiliation | Location of Training Records/Certificates |
|  |  |  |  |  |  |  |
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# WP/SAP Worksheet #8: Project Scoping Session Participants

**[(UFP-QAPP Manual Section 2.5.1)](http://www.epa.gov/fedfac/pdf/ufp_qapp_v1_0305.pdf" \l "page=51)**

This worksheet documents, to the extent practicable, dates and participants in project scoping sessions. Complete this worksheet for each project scoping session held. Identify project team members who are responsible for planning the project. The following is the generic form used for scoping meetings. NAVFAC RPMs should include meeting minutes and participant rosters in the project file and administrative record. Correspondence (e-mails etc.) to document consensus decisions and significant discussions, as well as records of communication (including meetings) shall be submitted to the administrative record file. There may be multiple entries (tables) for this element. Text format is acceptable for this element in lieu of the table (e.g. meeting minutes) as long as the key information is included. Scoping sessions are not limited to partnering meetings and may include phone conferences and email correspondence. All consensus decisions made should be documented here. Any post-meeting changes should be addressed in the form of notes and, if significant, in the Executive Summary.

| Project Name: |  | | | Site Name: | |  | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Projected Date(s) of Sampling: |  | | | Site Location: | |  | | |
| Project Manager: |  | | | | | | | |
| Date of Session: |  | | | | | | | |
| Scoping Session Purpose: |  | | | | | | | |
| Name | | Title | Affiliation | | Phone # | | E-mail Address | Project Role |
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Comments/Decisions:

Action Items:

Consensus Decisions:

# WP/SAP Worksheet #9: Conceptual Site Model

**(UFP-QAPP Manual Section 2.5.2)**

This worksheet is intended to present the conceptual site model (CSM) of the project. The level of detail in the CSM should be based on a graded approach based on the nature of the work being performed and the intended use of the data. A CSM to support environmental sampling usually includes a narrative description of site history, previous investigations, primary release mechanism, secondary contaminant migration, fate and transport considerations, and land use considerations, and use of either graphic or narrative components to describe key aspects of the site (site geology, hydrology, topography, cultural features, etc.) and the current interpretation of nature and the extent of contamination that will influence the project quality objectives and the sampling design. Uncertainties and data gaps associated with the CSM need to be clearly identified. The CSM will continuously evolve as new data is collected.

The information presented in this worksheet should be site-specific. It is unnecessary to describe overall regional information unless it is needed to understand the CSM. There are various graphic formats that can be used to display elements of a CSM. The appropriate format for a CSM will vary with respect to complexity and may change over time depending on site issues, constraints, and requirements associated with management decisions. Graphic formats are specific to the decision-making needs of the site and stakeholder team. For instance, 3-D figures may provide an overall summary but also may be hard to interpret. On the other hand, cross sections are easier to comprehend but may not accurately represent site conditions with respect to contaminant plume size and extent. A combination of plan and profile views may, although simpler, be the most straightforward approach.

For the combined WP/SAP, the bullet items below have been modified from the Optimized UFP-QAPP Worksheets document (IDQTF, 2012) with input from the UFP-QAPP Manual (IDQTF, 2005). The descriptions in this worksheet including data gaps will constitute the current CSM and shape subsequent project quality objectives (PQOs) development in WS #11. To keep this section purely devoted to the CSM, do not include Problem Definition in WS #9 but reserve Problem Definition for WS #11 (IDQTF, 2012).

* **Background** - Site history, including previous investigations and current regulatory status. Include discussion only of current and previous investigations that help develop a clear general CSM. Highly detailed and specific investigations can be referenced here, if needed, and then listed in the References or in WS #10 as secondary, if appropriate.
* **Land use considerations** – Past, present and anticipated future land use should be characterized. Include information describing and locating past features and current features visible at the site (e.g., buildings, equipment, debris, drums, materials, staining, odors, potential safety hazards, etc.).
* C**limate, ecology, topography, hydrology, geology, and hydrogeology –** Provide a physical and environmental (e.g., biological, cultural, etc.) framework for the CSM. Develop a description of site media for later use in evaluating natural site conditions that will feed into the PQOs (WS #11) and sampling design and rationale (WS #12).
* **Potential Contamination Sources** - Discussion of materials suspected to have been used or disposed of on the site. Information to consider includes historical site usage, site neighbors, industrial processes, process by-products, and waste disposal practices.
* **Known or suspected contaminants or classes of contaminants –** Describe potential contaminants or classes of contaminants that may have been released from the suspected sources discussed above and that may be of concern for the investigation.
* **Primary release mechanisms –** Evaluate likely release mechanisms for the suspected contaminants or classes of contaminants.

**WP/SAP Worksheet #9: Conceptual Site Model (continued)**

* **Fate and transport considerations –** Describe potential pathways of migration available for contaminants to move away from sources in view of the key physical site aspects presented above and of the mobility of the potential contaminants.
* **Secondary contaminant migration -** Discuss potential contaminant migration mechanisms not directly connected to or driven by the primary source(s). These serve to extend pathways for contaminants to migrate.
* **Current interpretation of nature and extent of contamination –** Describe and illustrate the distribution of suspected contamination with an emphasis on where potential transport mechanisms may have taken it. An analysis of the project’s potential investigation locations should be performed, where the amount of existing data allows it. Limit this discussion to the extent that it will be sufficient to drive the sampling design and influence project-specific decision making. This may change with time as more site information is collected and the CSM is revised.
* **Potential receptors and exposure pathways** - Identify potential receptors that may be at risk due to contaminant presence or potential migration into their environment. The input here will drive the use of project-specific screening/action levels. Summarize evaluation of risk and summarize any risk assessment performed.

# WP/SAP Worksheet #10: Secondary Data, Criteria and Limitations

[**(UFP-QAPP Manual Section 2.7)**](http://www.epa.gov/fedfac/pdf/ufp_qapp_v1_0305.pdf#page=74)

Tabulate data/documents generated for purposes other than this specific project or data/documents pertinent to this project generated under a separate Work Plan and/or SAP with different PQOs (IDQTF, 2012). Be prepared to provide the data at the request of NAVFAC SW and/or BRAC PMO West.

This worksheet is important where secondary data plays a role in meeting project-specific objectives or where secondary data limitations play a role in developing the WP/SAP. Examples of secondary data are maps, figures, tables, photographs, analytical data and associated measurement performance results, summary reports, historical data, and even meeting minutes and/or consensus agreements.

Identify all secondary data and information that will be used for the project and their originating sources. Specify how the secondary data will be used and the limitations on their use. Include any limitations on use of the data in the final report. Examples of limitations are outdated data, transcription errors, lack of validation, insufficient or lack of performance criteria for analytical data, changes in standards or CSM, or lack of detail or uncertainty in the information.

If no secondary data is generated or none will be used, then add a statement on this page that this worksheet is not necessary.

**Secondary Data, Criteria and Limitations**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Secondary Data | Data Source (originating organization, report title and date) | Data Generator(s) (originating organization, data types, data generation / collection dates) | How Data Will Be Used | Limitations on Data Use |
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# WP/SAP Worksheet #11: Project Quality Objectives/Systematic Planning Process

[**(UFP-QAPP Manual Section 2.6.1)**](http://www.epa.gov/fedfac/pdf/ufp_qapp_v1_0305.pdf#page=56)

Use this worksheet to develop and document project quality objectives (PQOs). PQOs are developed using a systematic planning process (SPP). EPA’s Data Quality Objectives (DQOs) process is an example of systemic planning. The WP/SAP must document the environmental decisions that need to be made and the level of data quality needed to ensure that decisions are based on sound scientific data. In general, the WP/SAP requires the following critical questions to be answered:

* What is the environmental question that is being answered?
* What are the Project Screening Levels (PSLs) and/or Project Action Levels (PALs)? (A specific detailed list should be provided in WS #15
* What is the intended use of the data?
* What types of data are needed (matrix, target analytes, analytical groups, field screening, onsite analytical or offsite laboratory techniques, sampling techniques)?
* Are there any special data quality needs, field or laboratory, in order to support environmental decisions?
* Where, when, and how should the data be collected/generated?
* What is the uncertainty level we are willing to accept and how will it be managed to ensure data is usable for its intended purpose?
* List the project-specific decision rules in the form of if/then qualitative and quantitative statements.

EPA’s DQO process information can be found at [epa.gov](http://www.triadcentral.org/over/index.cfm).

Using the DQOs process as the SPP, include all DQOs steps as summarized in the Steps below and incorporate the answers to the critical questions above as appropriate (do not include the actual questions with the responses):

**Step 1: State the Problem** - This should be a concise and complete description of the problem, forming the logical basis for the next Steps. Do not repeat or summarize the CSM. Cite it and the project scope as needed. The problem statement should be the bridge between the CSM (WS #9) and the Steps of the DQO process.

**Step 2: Identify the Goals of the Study** -To be developed in the form of key investigative questions to clearly define the range of efforts for the investigation. In the context of the Problem Statement, develop key questions that the investigation plans to answer. Decision statements will be developed in Step 5 to evaluate the extent to which the questions were answered by the data collected. There should be a one-to-one correlation between the investigative questions in this step and each group of potential outcomes developed for them in Step 5. The rationale and design for the investigative actions will be detailed in WS #12.

**Step 3: Identify Information Inputs** - Specify the types of data that are required to fill gaps in the CSM and to resolve the decision statements. In addition to analytical data for the primary contaminants of concern, this should include ancillary data (e.g. natural attenuation parameters), project threshold values (e.g., PSLs), and potentially published information on geology, climate, population distributions, endangered species, etc. Information inputs should be consistent with decisions made during project scoping, as documented in WS #8.

**Step 4: Define the Boundaries of the Study** - Describe the spatial (vertical and lateral) and temporal boundaries of the problem and any practical constraints that may limit the investigation. Ultimately, the boundaries define the scale of decision-making. They should be relevant to the CSM and consistent with WS #14 as well as address long-term monitoring if covered in the WP/SAP.

**WP/SAP Worksheet #11: Project Quality Objectives/Systematic Planning (continued)**

**Step 5: Develop the analytic approach** - Develop decision rules as if/then/else statements that provide evaluation methods to answer the key investigation questions of Step 2. The statements should describe the logical basis for judging the level of success in achieving answers to the study questions and drawing conclusions from findings. These rules should be specific and in some cases broken down into subset statements. At a minimum, a one-to-one correlation between rules and investigation questions (Step 2) should exist. Action levels should be developed and included in the rules for more mature projects.

**Step 6:** **Specify performance or acceptance criteria** - Define performance criteria or acceptance criteria (new data or existing data being considered for use). It may involve defining decision errors criteria (e.g. statistical/non-judgmental sampling approach) or defining the framework (e.g., performance criteria) for which sampling and analysis errors will be minimized (WS #16, WS #13, WS #18, WS #20, WS #24, WS #28, etc.).

**Step 7:** **Develop the plan for obtaining data** - Select the most resource-effective plan that is expected to satisfy the PQOs. This selection will be used to provide a guide for the sampling design and rationale detailed in WS #12. As with the problem definition Step (1) above, this Step should be a bridge between the SPP and the sampling design and rationale in WS #12. Avoid descriptions that are redundant of the detail in WS #12 to avoid repetition errors. The information in Step 7 should provide only a general overview of the plan for obtaining the data that will be conceptually expanded in WS # 12 and for which action-specific descriptions will be developed in WS #13.

# WP/SAP Worksheet #12: Sampling Design and Rationale

[**(UFP-QAPP Manual Section 3.1.1)**](http://www.epa.gov/fedfac/pdf/ufp_qapp_v1_0305.pdf#page=84)

This worksheet documents the conceptual logic that justifies the planned sampling approach to collect acceptable data to support the decisions identified in WS #11. It is relocated here to be consistent with the Optimized UFP-QAPP Worksheets natural order and clarity concepts and to reinvigorate the original intent of the worksheet that has diminished over time. It should not be used merely to reference other locations containing information for which this worksheet is intended to be the primary location.

Describe and provide a design basis and rationale for choosing the sampling approach, method (e.g., grid system, multi-incremental, judgmental), sampling areas, placement of samples within areas, and sample location logic, including basis for divisions (decision units, exposure units, etc.). If there are interdependencies, these design elements may be arranged in an order that makes sense for the particular project. Use separate worksheets for each separate area and avoid descriptions that are redundant of the details in WS #13. Generally, reserve that worksheet for how sampling will be implemented and this worksheet for rationale for the design fundamentals.

More specifically, justify and describe the sampling design basis and rationale in terms of what matrices will be sampled, what analytical groups will be analyzed, the sampling methods and locations (including QC, critical, and background samples), the number of samples to be collected, the sample depth intervals, and the sampling frequency (including seasonal considerations). Justification/rationale for not collecting QC samples deemed unnecessary due to project specifics should be included (e.g. equipment blanks, soil field duplicates, etc.).

Include a site map showing the sampling locations; if locations are not known at the time the WP/SAP is finalized, then the boundaries of the sampling area shall be shown in the Draft WP/SAP. Include charts, plans, and SOPs (electronic format is suitable for SOPs), and other documents to reference how the sampling points or locations were or shall be precisely determined.

The following provides a list of potential sampling designs:

* Surface Water
* Sediment
* Surface Soil
* Subsurface soil
* Groundwater
* Soil Gas
* Indoor Air

MMRP and radiological characterization designs are in addition to the potential designs above. The potential designs may also be relevant to MMRP and radiological investigations depending on whether those investigations include sampling and analysis for chemical constituents. That relationship should be clearly explained in an introductory paragraph in WS #12.

# WP/SAP Worksheet #13: Summary of Project Tasks

[**(UFP-QAPP Manual Section 2.8.1)**](http://www.epa.gov/fedfac/pdf/ufp_qapp_v1_0305.pdf#page=78)

This worksheet specifies and/or describes the detailed field actions that will be executed to fulfill the sampling Design and Rationale of WS #12. It is relocated here to be aligned with the Optimized UFP-QAPP concept of clarity and logical flow.

Tasks may reference SOPs, other worksheets, or other plans included as attachments, if they provide enough information to be project-specific. Otherwise, provide detailed descriptions of the procedures in this worksheet. Do not duplicate information available elsewhere. Documents such as Waste Management Plan, Biological Survey Work Plan, Storm Water Prevention Plan, etc., are attachments to be reviewed outside the NIRIS SAP Review Module.

The bullet items below compose a list of specific tasks common to environmental investigations presented in an order consistent with those concepts. However, some projects may not include all of the listed tasks (e.g., non-MMRP and non-radiological projects) or may include others. Examples of tasks include, but are not limited to:

* Construction quality control (as applicable)
* Natural/cultural resources and/or biological clearance
* Vegetation removal/trimming
* Utility clearance
* Equipment decontamination
* Radiological surveys
* MEC clearance
* Geophysical surveying & MMRP classification
* Reacquisition & dig
* Trenching/Potholing
* Major excavation
* Drilling and borings
* Field screening
* Soil gas sampling
* Soil sampling
* Grab groundwater sampling
* Well installation
* Well development
* Groundwater sampling
* Quality control samples
* Analytical tasks

**WP/SAP Worksheet #13: Summary of Project Tasks (continued)**

* Investigation derived waste management
* Land surveying
* Data management and review
* Independent data validation
* Documentation

# WP/SAP Worksheet #14: Project Schedule/Timeline

[**(UFP-QAPP Manual Section 2.8.2)**](http://www.epa.gov/fedfac/pdf/ufp_qapp_v1_0305.pdf#page=82)

All WP/SAP documents must include timeline elements applicable to both the Work Plan and SAP activities for the project. The tabular format below displays the minimum requirements including milestones, duration allotted for activities, and required deliverables. If specific dates are associated with milestones or activities, please include them with this timetable. For long-term groundwater monitoring, the schedule/timeline needs to list the sampling events covered in the WP/SAP. Project timelines created in MS Project or Gantt charts are acceptable but should follow the same terminology (Preliminary Draft, Draft, Draft Final, and Final WP/SAP, field/monitoring events, etc.) for consistency with NIRIS requirements.

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| --- | --- | --- | --- | --- |
| Activity | Number of days from start | Duration | Deliverable | Deliverable Due Date |
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# WP/SAP Worksheet #15: Reference Limits and Evaluation

**(UFP-QAPP Manual Section 2.8.1)**

This worksheet is designed to demonstrate that the selected analytical laboratory and method can meet the project threshold limits. Complete this worksheet for each matrix sampled (e.g., WS #15.1 Soil, WS #15.2 Groundwater). Identify the target analytes/contaminants of concern and project-required threshold limits and quantitation goals. Next, list the laboratory-defined detection limits (DLs), limit of detections (LODs) and limits of quantitation (LOQs) that must be met to achieve the project quality objectives in WS #11. For comparison purposes, all numerical values should be listed using the same concentration units for each matrix. Identify analytes where these levels cannot be met due to analytical method limitations and add a footnote to describe how data would be evaluated, making reference to the data usability assessment in WS #37. Unless required by the regulatory agencies or site-specific decision criteria, the use of PQLs is discouraged and, if used, these levels should never be below the LOQs.

The project threshold limits reference refers to the regulatory or site-specific decision criterion (e.g., MCLs, PRGs, EALs, etc.) that’s used to establish the Project Screening Level (PSL) and/or Project Action Limit (PAL), as applicable for a specific analyte. List the type and source of the limits used for each matrix specific analyte (e.g., Background, HH-MCL, HH-region III RBC, eco-WQC, eco-Region III BTAG, etc.). Additional columns can be added to present multiple decision criteria. If individual threshold limits are not appropriate, explanation should be provided. If laboratory-specific limits are not known at the time of the Draft WP/SAP, place to-be-determined, “TBD” as a placeholder in the columns. However, these fields MUST be populated and approved in the Final WP/SAP prior to the sampling event.

| **Matrix:** |  | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Analytical Group:** |  | | | | | | |
| Analyte | CAS No. | PSL or PAL  (applicable limits) | PSL or PAL Reference | Project QL Goal  (as applicable) | Laboratory Specific Limits | | |
| LOQs | LODs | DLs |
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# WP/SAP Worksheet #16: Field Quality Control Samples

[**(UFP-QAPP Manual Section 2.6.2)**](http://www.epa.gov/fedfac/pdf/ufp_qapp_v1_0305.pdf#page=61)

WS #16 is in this relocated order to provide a smooth flow of information at the beginning of the more detailed quality assurance/quality control elements and after the associated work plan portion worksheets of this WP/SAP format.

Complete this worksheet for each matrix, analytical group, and concentration level. This worksheet is intended to describe how the project will use specific field QC samples to assess the principal data quality indicators (DQIs) of precision, bias, representativeness, completeness, comparability, and sensitivity. Identify the field QC sample and/or activity and the associated measurement performance criteria (MPC) that will be used to assess the DQIs for both the sampling and analytical measurement systems. Use additional worksheets if necessary. If the MPC for a specific DQI vary within an analytical parameter, i.e., if the MPC are analyte-specific, then provide analyte-specific MPC on additional worksheets. Separate worksheets should be provided for each matrix (e.g., WS #16.1 Soils, WS #16.2 Sediments, etc.). If information varies within an analytical group, separate by individual analyte.

The selection of Field QC control samples must be based on project-specific DQOs. Justification/rationale for the exclusion of any specific QC sample must be footnoted in this table and further discussed in WS #12.

An example table is provided below. If Matrix Spike and Matrix Spike Duplicates (MS/MSDs) are included in this table to ensure enough sample volume/weight is collected for the samples selected for these analyses, the column for MPC should refer to WS #28 where Laboratory QC control samples are addressed.

**Measurement Performance Criteria Table – Field QC Samples**

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| --- | --- | --- | --- | --- |
| QC Sample | Analytical Group | Frequency | Data Quality Indicators (DQIs) | Measurement Performance Criteria |
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# WP/SAP Worksheet #17: BLANK

***This Worksheet has been intentionally left blank*.**

# WP/SAP Worksheet #18: Location-Specific Sampling Methods/SOP Requirements

[**(UFP-QAPP Manual Section 3.1.1)**](http://www.epa.gov/fedfac/pdf/ufp_qapp_v1_0305.pdf#page=84)

The primary value of this worksheet is as a completeness check for field personnel and auditors/assessors. It makes sure all planned samples have been collected and appropriate methods have been used. Ideally, this worksheet should list each individual sample that is planned to be collected, including field QC samples.

List all site locations that will be sampled and include sample/ID number, if available. (Provide a range of sampling locations or ID numbers if a site has a large number.) Specify matrix and, where applicable, depth at which samples will be taken. The depth of the proposed sample may not be known at the time of WP/SAP document development. For those cases, an approximate depth and a qualitative descriptor such as “capillary fringe” are sufficient. Complete all required information, using additional worksheets if necessary. The WP/SAP must describe how samples will be collected by referencing field SOPs where appropriate and/or a detailed description of procedures must be incorporated in WS #13. In addition to the table, supportive text may be needed. The selected sample collection procedures must be appropriate to ensure that project personnel collect representative samples in a consistent manner for all required sample matrices and locations, that contamination is not introduced during collection, and that samples are properly preserved in order to meet project objectives. Field duplicates, if collected, must be documented properly but should remain blind to the laboratory.

Samples with common entries may be grouped but field QC samples and samples that are unique must be listed separately. Identify sample locations selected for MS/MSD analyses but avoid listing MS/MSD aliquots as if they were separate site samples (these represent additional volume for groundwater and soil of a regular sample but some laboratories may charge for two additional analyses which in this case would justify listing them in the chain of custody and in WS #18 separately). If a sample is being collected in increments (e.g., ISM), use only one line to identify the sample as it will be submitted to the laboratory for analysis; there is no need to list the increments separately. (If the increments are placed in separate containers to be combined in the laboratory, then each container must be labeled accordingly.) Detailed sampling SOPs must be available to field personnel and should be included as an appendix to the WP/SAP and referenced in this worksheet. Add a comments field, if needed, to note any special sample handling required in the field and/or GPS coordinates. A map with the proposed locations marked should be included. Use additional worksheets as necessary.

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| --- | --- | --- | --- | --- | --- |
| Sampling Location/ID Number | Matrix | Depth  (units) | Analytical Group/Analytical Method | Number of Samples | Sampling SOP Reference1 |
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**Notes:** 1Standard Operating Procedure (SOP) or worksheet that describes the sample collection procedures.

# WP/SAP Worksheet #19: Field Sampling Requirements

**[(UFP-QAPP Manual Section 3.1.1)](http://www.epa.gov/fedfac/pdf/ufp_qapp_v1_0305.pdf" \l "page=85)**

The purpose of this worksheet is to be a reference guide for field personnel. It will also aid in completing the Chain of Custody form and shipping documents.

| **Matrix** | Analytical Group | Analytical and Preparation Method / SOP Reference | Containers  (number, size, and type) | Sample Volume  (units) | Preservation Requirements  (chemical, temperature, light protected) | Maximum Holding Time1  (preparation/ analysis) |
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For each matrix and analytical group, list the analytical and preparation method/SOP and associated container specifications, preservation requirements, and maximum holding time. Under sample volume, provide the minimum sample volume or mass requirement if it differs from the container volume. As applicable, specify dissolved versus total analyses e.g., metals) and add footnote for clarification, if needed.

**Notes:**

1Maximum holding time is calculated from the time the sample is collected to the time the sample is prepared/extracted.

# WP/SAP Worksheet #20: Field Quality Control Sample Summary

[**(UFP-QAPP Manual Section 3.1.1)**](http://www.epa.gov/fedfac/pdf/ufp_qapp_v1_0305.pdf#page=86)

This worksheet provides a summary of the types of samples to be collected and analyzed for the project. Its purpose is to show the relationship between the number of field samples and associated QC samples for each combination of analyte/analytical group and matrix. This worksheet is also useful for informing the laboratory of the number of samples to expect and for preparing analytical cost estimates. The number and types of QC samples should be based on project-specific DQOs, and this worksheet should be adapted as necessary to accommodate project-specific requirements.

Summarize by matrix and analytical group the number of field QC samples (initially identified on WS#16) that will be collected and sent to the laboratory. Refer to minimum requirements in the [**UFP-QAPP Part 2B QA/QC Compendium**](http://www.epa.gov/fedfac/pdf/qaqc_v1_0305.pdf)**.** Documentation should be included if the total number of field QC may increase due to field activities. If so, reference should be made to WS #16 for field QC frequency. In this case, include on this worksheet the total number of samples that will be generated in the sampling. The same applies to investigations where the WP/SAP covers multiple sampling events (e.g., Long-Term Monitoring). In such cases, it is recommended that the table reflect the total number of samples per event with clarification regarding the total number of events covered in the WP/SAP (e.g., quarterly for 2 years). If composite samples or incremental samples are being collected, include only the sample that will be analyzed; subsamples and increments should not be included in the total count. Although MS/MSDs are not considered field QC samples, they should be included here to account for the additional volume needed to analyze these laboratory QC samples. Sample locations for MS/MSD analyses should be selected by the Project Chemist before fieldwork. Add a caveat as a footnote to the table that these selected locations could change based on site conditions.

| **Matrix** | **Analytical Group** | **No. of Sampling Locations** | **No. of Field Duplicates** | **No. of MS/MSDs** | **No. of Field Blanks** | **No. of Equip. Blanks** | **No. of Trip Blanks** | **No. of PT Samples** | **Total No. of Samples to Lab** |
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**Notes:**

MS matrix spike

MSD matrix spike duplicate

PT Proficiency Testing

# WP/SAP Worksheet #21: Project Field Sampling SOP References

[**(UFP-QAPP Manual Section 3.1.2)**](http://www.epa.gov/fedfac/pdf/ufp_qapp_v1_0305.pdf#page=86)

This worksheet is intended to document the specific field procedures being implemented. The WP/SAP must contain detailed descriptions of procedures for all field activities. If these procedures are included in existing SOPs, then the SOPs should be reviewed to make sure they are either 1) sufficiently prescriptive to be implemented as written, or 2) modified as necessary for this project. If a SOP provides more than one procedure or option (for example, one SOP covers the use of several different types of field equipment for the same procedure), this worksheet must note the specific option or equipment used. In the absence of project-specific SOPs, a detailed description of procedures must be incorporated in WS #13. Basic information about the SOPs should be provided in this table, and the SOPS themselves should be included in an appendix. Field SOPs must be readily available to all personnel responsible for implementation. The WP/SAP must explain any planned modifications to field SOPs. Modifications should be clearly noted on the SOPs themselves. The specific type(s) of SOP modifications/deviations must be summarized in the comments column or a reference provided.

List all field sampling method SOPs or relevant sampling methodology associated with fieldwork implementation including, but not limited to:

* Radiological surveys
* Geophysical surveys
* Sample collection
* Sample preservation
* Equipment cleaning and decontamination
* Equipment testing
* Inspection and maintenance
* Drilling
* Well installation and development
* Supply inspection and acceptance
* Sample handling and custody

| **Reference Number** | **Title, Revision Date and/or Number** | **Originating Organization of Sampling SOP** | **Equipment Type** | **Modified for Project Work?**  **(Y/N)** | **Comments** |
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# WP/SAP Worksheet #22: Field Equipment Calibration, Maintenance, Testing, and Inspection

[**(UFP-QAPP Manual Section 3.1.2.4)**](http://www.epa.gov/fedfac/pdf/ufp_qapp_v1_0305.pdf#page=88)

This worksheet is intended to document procedures for calibrating, maintaining, testing, and/or inspecting all field equipment (e.g., tools, pumps, gauges, magnetometers, pH meters, water-level measurement devices, etc.). If these activities are documented in a SOP or manufacturer’s instructions, and the relevant SOP or instruction is attached, then the frequency, acceptance criteria and corrective action columns may be left blank with a note to that effect in the Comments column. All the information summarized in this worksheet should be recorded in the field notes/logs. If field forms are included as an Appendix to the WP/SAP, then add text reference here.

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| **Field Equipment** | **Activity** | **Frequency** | **Acceptance Criteria** | **Corrective Action** | **Resp. Person** | **SOP Reference** | **Comments** |
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# WP/SAP Worksheet #23: Analytical SOP References

[**(UFP-QAPP Manual Section 3.2.1)**](http://www.epa.gov/fedfac/pdf/ufp_qapp_v1_0305.pdf#page=91)

An individual sheet should be prepared for each primary and backup laboratory proposed for use. For the Accreditation and Certifications (e.g., DoD ELAP, State Approval, etc.) required for a laboratory completing the work of the WP/SAP, documentation of the laboratory having each requirement met and expiration date must be provided in WS #30. All analytical and preparation procedures that will be used in the project must be documented in this worksheet. Copies of the applicable laboratory SOPs are not to be included as an Appendix (or attachment) to the WP/SAP. Laboratory SOPs are considered a separate document deliverable with its own Design Change Notice (DCN) and distribution statement and are required to be uploaded to NIRIS concurrently with the WP/SAP under separate cover. List all SOPs that will be used to perform onsite or offsite analysis. Indicate whether the procedure produces screening or definitive data. The reference number can be used by the QAO to track a specific SOP. If the SOP has been modified for project work, note the modification in the final column.

**(Laboratory Name and Address)**

**(Point of Contact Name)**

**(Phone Number)**

| **Lab SOP Number** | **Title, Revision Date, and/or Number** | **Definitive or Screening Data** | **Matrix and Analytical Group** | **Instrument** | **Variance to QSM** | **Modified for Project Work? (Y/N)** |
| --- | --- | --- | --- | --- | --- | --- |
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# WP/SAP Worksheet #24: Analytical Instrument Calibration

[**(UFP-QAPP Manual Section 3.2.2)**](http://www.epa.gov/fedfac/pdf/ufp_qapp_v1_0305.pdf#page=91)

This worksheet should be completed for all analytical instruments, whether used in the field or the laboratory.

A list of analytical instrument calibration procedures shall be provided in this worksheet. Initial calibration, continuing calibration verifications, and continuing calibration blanks (ICAL, CCV and CCB, respectively) entries should be provided. In addition, document the frequency, acceptance criteria, and corrective action requirements on the worksheet. All instruments must be calibrated according to the schedule specified by the method and instrument manual or SOPs. The name and title of responsible person should be specified. Do not include laboratory QC samples analyses (laboratory control sample [LCS], MS/MSDs, etc.) in this worksheet. Laboratory QC sample information is to be included in WS #28.

| **Instrument** | **Calibration Procedure** | **Frequency of Calibration** | **Acceptance Criteria** | **Corrective Action** | **Person Responsible  for Corrective Action** | **SOP Reference** |
| --- | --- | --- | --- | --- | --- | --- |
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# WP/SAP Worksheet #25: Analytical Instrument and Equipment Maintenance, Testing, and Inspection

[**(UFP-QAPP Manual Section 3.2.3)**](http://www.epa.gov/fedfac/pdf/ufp_qapp_v1_0305.pdf#page=92)

Instrument and equipment maintenance logs must be kept to document analytical instrumentation and equipment maintenance, testing, and inspection activities. If this information is already part of the WP/SAP, provide a reference on this worksheet where the information is located. Otherwise, use this worksheet to identify all analytical instrumentation that requires maintenance, testing, or inspection and provide the SOP reference number for each. In addition, document the frequency, acceptance criteria, and corrective action requirements on the worksheet. The name and title of the responsible person should be specified.

| **Instrument/ Equipment** | **Maintenance Activity** | **Testing Activity** | **Inspection Activity** | **Frequency** | **Acceptance Criteria** | **Corrective Action** | **Responsible Person** | **SOP Reference** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
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# WP/SAP Worksheet #26: Sample Handling, Custody, and Disposal

**(UFP-QAPP Manual Appendix A and** [**UFP-QAPP Manual Section 3.3.3)**](http://www.epa.gov/fedfac/pdf/ufp_qapp_v1_0305.pdf#page=95)

WS #26 consolidates interrelated information in WS#26 and WS#27 into one worksheet. In order to maintain the same numerical sequence as in the UFP-QAPP template and facilitate incorporation of information directly from the laboratory into WS#28, a Blank Worksheet #27 has been inserted. Additionally, to minimize duplication of information, references to SOPs have been added. In the absence of project-specific SOPs, add a simple narrative format to describe these procedures in association with the example table in this combined worksheet.

|  |  |
| --- | --- |
| **SAMPLE COLLECTION, PACKAGING, AND SHIPMENT / SOP#** |  |
| Sample Collection (Personnel/Organization): |  |
| Sample Packaging (Personnel/Organization): |  |
| Coordination of Shipment (Personnel/Organization): |  |
| Type of Shipment/Carrier: |  |
| **SAMPLE RECEIPT AND ANALYSIS / SOP #** |  |
| Sample Receipt (Personnel/Organization): |  |
| Sample Custody and Storage (Personnel/Organization): |  |
| Sample Preparation (Personnel/Organization): |  |
| Sample Determinative Analysis (Personnel/Organization): |  |
| **SAMPLE ARCHIVING / SOP #** |  |
| Field Sample Storage (No. of days from sample collection): |  |
| Sample Extract/Digestate Storage (No. of days from extraction/digestion): |  |
| Biological Sample Storage (No. of days from sample collection): |  |
| **SAMPLE DISPOSAL # SOP #** |  |
| Personnel/Organization: |  |
| Number of Days from Analysis: |  |

Use the table below to identify components of the project-specific sample handling and custody system as well as document disposal procedures. Record personnel (and their organizational affiliations) who are primarily responsible for ensuring proper handling, custody, and storage of field samples from the time of collection, to laboratory delivery, to final sample disposal. Details on project-specific custody transfer procedures for shipment and how sample custody and integrity will be maintained and documented can be referenced to the appropriate SOPs included in the WP/SAP. Any electronic or software custody procedures must be documented. Include examples of chain-of-custody forms, sample identification conventions, custody seals, laboratory sample receipt forms, and laboratory sample transfer forms.

# WP/SAP Worksheet #27: BLANK

***This Worksheet has been intentionally left blank*.**

# WP/SAP Worksheet #28: Laboratory QC Samples

[**(UFP-QAPP Manual Section 3.4)**](http://www.epa.gov/fedfac/pdf/ufp_qapp_v1_0305.pdf#page=95)

This worksheet is used to document the laboratory QC samples and their respective acceptance limits to demonstrate that the selected analytical methods are capable of meeting project-specific requirements. If method/SOP QC acceptance limits exceed the measurement performance criteria established for the project, the data obtained may be deemed unusable for making project decisions. Therefore, it is important to select analytical methods that can support project DQOs.

Complete a separate worksheet for each sampling technique, analytical method/SOP, matrix, and analytical group. Screening analyses should include a decision tree or logic diagram to describe how samples will be selected for subsequent definitive data analysis.

| Matrix | | |  | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Analytical Group | | |  | | | | |
| Analytical Method/ SOP Reference | | |  | | | | |
| **QC Sample:** | **Frequency & Number** | **Method/SOP QC Acceptance Limits** | | **Corrective Action** | **Person(s) Responsible for Corrective Action** | **Data Quality Indicator (DQI)** | **Measurement Performance Criteria** |
| Method Blank |  |  | |  |  |  |  |
| LCS |  |  | |  |  |  |  |
| MS |  |  | |  |  |  |  |
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The list of QC samples in this example is incomplete. Refer to **Part 2B of the UFP-QAPP QA/QC Compendium**-Minimum QA/QC Activities for further guidance.

**Notes:**

LCS laboratory control sample

MS matrix spike

# WP/SAP Worksheet #29: Project Documents and Records

**[(UFP-QAPP Manual Section 3.5.1)](http://www.epa.gov/fedfac/pdf/ufp_qapp_v1_0305.pdf" \l "page=108)**

Identify the documents and records that will be generated for all aspects of the project including, but not limited to, sample collection and field measurement, onsite and offsite analysis, and data assessment. All project data and information must be documented in a format that is usable by project personnel. Describe how project data and information will be documented, tracked, and managed, from generation in the field to final use, and storage in a manner that ensures data integrity, defensibility, and retrieval. Use of the table below is optional but recommended to facilitate future retrieval of this information.

Note that for NAVFAC SW all document deliverables are submitted to the NAVFAC SW Records Management Office for processing before being shipped off to an approved facility for long term storage. NAVFAC SW Records Management Office manages and stores the reports in accordance with NAVFAC Environmental Restoration Program Recordkeeping Manual (NAVFAC, 2017).

| **Document** | **Where Maintained** |
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# WP/SAP Worksheet #30: Analytical Services

**[(UFP-QAPP Manual Section 3.5.2.3)](http://www.epa.gov/fedfac/pdf/ufp_qapp_v1_0305.pdf" \l "page=114)**

Identify all laboratories or organizations that will provide analytical services for the project, including onsite screening, onsite definitive, and offsite laboratory analytical work. Group the analytical services by matrix, analytical group, and sample location or ID number. If applicable, identify the subcontractor laboratories and backup laboratory or organization that will be used if the primary laboratory or organization cannot be used.

If the project team does not anticipate sending samples to multiple laboratories, the table does not need to be utilized. Instead, please state in abbreviated text the lab to which all samples will be delivered, the data package turnaround time, and the backup laboratory. Describe or provide a table for the requirements for the data package deliverables. See **page 91-93 Table 7 of the UFP-QAPP Manual, V1, March 2005** for additional guidance. Describe the sample collection and field measurements data packages deliverables. Discuss onsite analysis data package deliverables. If the laboratory is not known at the time of the Draft WP/SAP submission, it is acceptable to put “TBD” in the column as a placeholder. However, before the Final WP/SAP can be approved by the QAO, a laboratory must be identified and all relevant information provided for review (LOQs, LODs, DLs, SOPs, etc.). Accordingly, the Project Team should anticipate and plan for a more in-depth and likely extended QAO review of the Draft Final WP/SAP.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Matrix** | **Analytical Group** | **Sample Locations/ID Numbers** | **Analytical SOP** | **Data Package Turnaround Time** | **Laboratory/Organization1 (name and address, contact person and telephone number)** | **Backup Laboratory/Organization  (name and address, contact person and telephone number)** |
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**Notes:**

1Laboratory meets accreditation requirements to support project needs.

# WP/SAP Worksheet #31: Assessments and Corrective Actions

**(UFP-QAPP Manual Sections 4.1.1 and 4.1.2)**

WS #31 consolidates all project assessments and corrective actions in a couple of tables consistent with the Optimized UFP-QAPP Worksheets (IDQTF, 2012). In order to maintain the same numerical sequence as in the UFP-QAPP template, a Blank worksheet has been inserted. These tables list document responsibilities for conducting project assessments, responding to assessment findings and implementing corrective action. Appropriately scheduled assessments (e.g., field sampling technical systems audits [TSA] at the beginning of sampling) allow management to implement corrective action in a timely manner, thereby correcting non-conformances and minimizing their impact on DQOs. Assessment checklists should be included in the WP/SAP or referenced.

**Assessments**:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Assessment Type** | **Number and**  **Frequency** | **Internal or External** | **Organization Performing Assessment** | **Person(s) Responsible for Performing Assessment** | **Assessment Deliverable** |
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**Assessment Findings and Corrective Actions:**

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| --- | --- | --- | --- | --- | --- | --- |
| **Assessment Type** | **Individual(s) Notified of the Findings** | **Assessment/Deficiency Documentation** | **Individual(s) Responsible for Implementing Corrective Action** | **Corrective Action Documentation** | **Individual (s) Responsible for monitoring Corrective Action Implementation** | **Timeframe for Corrective Action Implementation** |
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# WP/SAP Worksheet #32: BLANK

***This Worksheet has been intentionally left blank*.**

# WP/SAP Worksheet #33: Quality Assurance Management Reports

[**(UFP QAPP Manual Section 4.2)**](http://www.epa.gov/fedfac/pdf/ufp_qapp_v1_0305.pdf#page=123)

Describe the content of each QA management report that will be generated for the project, including an evaluation of measurement error as determined from the assessments (e.g. Data Usability Assessment). All QA management reports should be included as attachments to the final project report where appropriate. The issues listed on **pages 103-104 of the UFP-QAPP Manual, V1, March 2005** must be addressed in the QA management reports or the QA/QC section of the final project report and must include the additional data concerns including but not limited to those listed on **Section 4.3 of the UFP-QAPP Manual** (e.g., progress reports, PT sample reports, etc.).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Type of Report** | **Frequency  (daily, weekly monthly, quarterly, annually, etc.)** | **Projected Delivery Date(s)** | **Person(s) Responsible for Report Preparation (title and organizational affiliation)** | **Report Recipient(s) (title and organizational affiliation)** |
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# WP/SAP Worksheets #34-36: Data Verification and Validation (Steps I and IIa/IIb) Process

**(**[**UFP-QAPP Manual Section 5.2.1 and Section 5.2.2)**](http://www.epa.gov/fedfac/pdf/ufp_qapp_v1_0305.pdf#page=131)

Data review procedures and criteria are documented in the WP/SAP to ensure that data are evaluated properly, completely, and consistently for use in meeting project data quality objectives (DQOs). Describe the processes that will be followed for data review. Verification (Step I) is a completeness check that is performed before the data review process continues in order to determine whether the required information (complete data package) is available for further review. Validation (Step IIa) is a review that the data generated is in compliance with analytical methods, procedures, and contracts. Validation (Step IIb) is a comparison of generated data against measurement performance criteria in the WP/SAP (both sampling and analytical). The description should detail how each item will be reviewed, when the activity will occur, and what documentation is necessary. *Internal* or *external* is in relation to the data generator.

For analytical data validation, the data review input is the matrix and analytical group of the data. The description is then the validation criteria for comparison. Verification and validation inputs for this worksheet include items such as those listed in **Table 9 on pages 112-113 of the UFP-QAPP Manual, V1, March 2005**. Validation guidance and documents should address items such as those specified on **page 115 of the UFP-QAPP Manual** (e.g., the process that will be used to validate sample collection handling, field analysis, and analytical lab project data). This worksheet should also make reference to NAVFAC SW Environmental Work Instruction #1 (EWI #1) for Chemical Data Validation. If streamlining of data review is being performed, clearly identify the amounts and type of data to be streamlined, as well as the nature of the streamlining activity in the text. Differentiate between Steps IIa and IIb of validation.

| **Data Review Input** | **Description** | **Responsible for Verification (name, organization)** | **Step I/IIa/IIb 1** | **Internal/ External** |
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**Notes**1**:** 1IIa=compliance with methods, procedures, and contracts [see Table 10, page 117, UFP-QAPP manual, V.1, March 2005.]

# WP/SAP Worksheet #37: Data Usability Assessment (DUA)

[**(UFP-QAPP Manual Section 5.2.3)**](http://www.epa.gov/fedfac/pdf/ufp_qapp_v1_0305.pdf#page=139)

The DoD Environmental Data Quality Workgroup (EDQW) is in the process of developing guidance to ensure consistency on how to conduct an effective data usability assessment. Once this guidance is finalized, an official reference will be included in this worksheet. In the interim, the information provided below is aligned in concept with the forthcoming DOD guidance.

The DUA is a separate process from verification and validation and is performed following verification and validation of data. In some instances, such as with screening or preliminary data, the DUA may occur both prior to validation and following final validation of data. It is the data interpretation phase that involves a qualitative and quantitative evaluation of environmental data to determine if the project data are of the right type, quality, and quantity to support the project decisions. It involves a retrospective evaluation of the systematic planning process, and, like the systematic planning process, involves participation by key members of the project team. The data usability assessment evaluates whether underlying assumptions used during systematic planning are supported, sources of uncertainty have been accounted for and are acceptable, data are representative of the population of interest, and the results can be used as intended, with the acceptable level of confidence.

The DUA process itself follows a set of defined steps which are the same regardless of project or data complexity. They include:

• Step 1: Review the project’s objectives and sampling design; Review the key outputs from systematic planning (e.g., Data Quality Objectives (DQOs) and Measurement Performance Criteria (MPCs).

• Step 2: Review the data verification/validation outputs; Review field documentation for deviations from planned activities and data reports for patterns, trends, and anomalies.

• Step 3: Document data usability, update CSM, apply decision rules, and draw conclusions; Following the process detailed in WS #37 of the project WP/SAP, document the data usability.

• Step 4: Document lessons learned and make recommendations; Documents any project level lessons learned and any sample-specific lessons learned.

On this worksheet, describe the evaluative process used to implement the above steps and the overall data usability associated with the project. Identify the personnel responsible for performing the usability assessment. Describe the documentation that will be generated during usability assessment and how usability assessment results will be presented so that they identify trends, relationships (correlations), and anomalies. Discuss and describe how the Project Team will participate in the usability assessment to ensure that the project DQOs are understood and the full scope is assessed, including elements that were not considered during data validation. Describe how data quality issues will be addressed and how limitations on the use of the data will be handled. A narrative format is acceptable.

# REFERENCES

Intergovernmental Data Quality Task Force, 2005. Uniform Federal Policy for Quality Assurance Project Plans Evaluating, Assessing, and Documenting Environmental Data Collection and Use Programs Part 1: UFP-QAPP Manual Final Version 1, March.

\_\_\_\_\_, 2012. Uniform Federal Policy for Quality Assurance Project Plans Optimized UFP-QAPP Worksheets, March (reference within, 2106-G-05 QAPP Guidance, was later retracted by the Task Force).

\_\_\_\_\_, 2006. Guidance on Systematic Planning Using the Data Quality Objectives Process, EPA QA/G-4, February**.**

Naval Facilities Engineering Systems Command (NAVFAC), 2017. Environmental Restoration Program Recordkeeping Manual*,* February.

**TABLES**

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**FIGURES**

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**A****PPENDICES**

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**ATTACHMENTS**

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