

US EPA ARCHIVE DOCUMENT

# **Washington State Department of Ecology**

## **Industrial Footprint Project**

### **Quality Assurance Project Plan**

Washington State Department of Ecology  
Industrial Section  
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**A. PROJECT MANAGEMENT**

**A1. Approval Sheet**

**Title: Industrial Footprint Project**

**Author: Carol Kraege  
Industrial Section**

**Date: December 21, 2006**

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Carol Kraege  
Industrial Section Manager  
Department of Ecology

Date

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Cullen Stephenson  
SWFAP Manager  
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Date

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Date

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**A3. Distribution List**

Each person listed on the approval sheet and each person/position listed under Project/Task Organization will receive a copy of this Quality Assurance Project Plan (QAPP). Please note that the project consultant has not yet been selected. Once selected, the QAPP will be revised. Individuals taking part in the project may request additional copies of the QAPP from personnel listed below.

This document has been prepared according to the United States Environmental Protection Agency publication *EPA Requirements for Quality Assurance Project Plans (QAR-5)* (March 2001).

**Table 1: Industrial Footprint Project Implementation Personnel**

Individual	Role in Project	Organizational Affiliation
Carol Kraege	Project Manager	WDOE- Industrial Section Manager
Bill Kammin	QA Manager	WDOE- Environmental Assessment Program
To be hired	Project Coordinator	WDOE- Industrial Section
To be selected	Project Consultant	To be selected
Merley McCall	Pulp and Paper expert	WDOE- Industrial Section Unit Supervisor for the Pulp and Paper Unit
Robert Carruthers, Marc Heffner, Marc Crooks, Don Nelson and Teddy Le	Engineering, facility expertise, compliance expertise for all participating facilities.	WDOE- Industrial Section

The Project Manager will be responsible for the following activities:

- Overall project management including supervision of the project coordinator and the Project Consultant
- Coordinate major tasks including organizing Industrial Section Project Advisory Team, recruiting and selecting the Project Coordinator and the Project Consultant, recruiting and selecting participating facilities and working with major stakeholders

- Ensure project milestones are met including quarterly progress reports and final report to EPA
- Maintain and, as appropriate, update QAPP

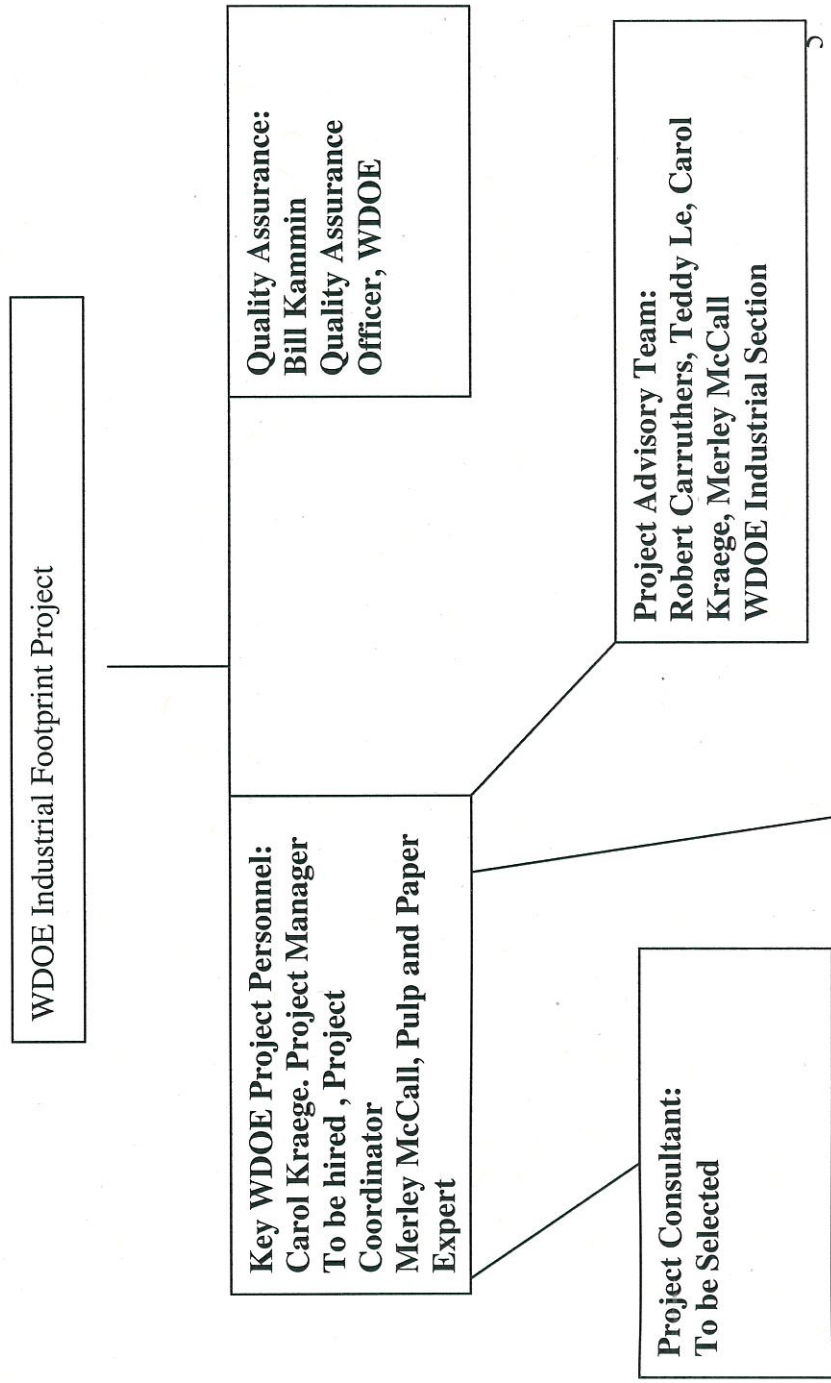
The Project Coordinator will be responsible for the following activities:

- Day-to-day project coordination
- Development of the RFP and coordination of the process to select the consultant
- Data collection, information gathering with participating facilities
- Coordination of staff engineers, the project consultant and participating facilities
- Communication with EPA and other project partners on project progress and findings
- Project administration including budget, contractual services, reporting, and other related activities
- Keep the project web-page updated

The project consultant will provide expertise in public involvement and data collection, analysis and management to the project. Responsibilities will include:

- Development and implementation of public involvement plans for each participating facility
- Expertise in development and analysis of sustainability indicators specified in the Facility Reporting Project Pilot Draft document
- Preparing reports, analyses, and other information as requested by the project team
- Serving as an expert advisor to the project on footprint issues

**Figure 1: Project Organizational Chart**



#### **A4. Quality Assurance Management Plan (QAMP)**

The Washington State Department of Ecology has an approved Quality Management Plan (QMP), 2005 Edition, which describes how programs within the agency will plan, implement and assess the quality of environmental work to be performed as part of the various programs' functions within the agency. This Quality Assurance Project Plan (QAPP) is consistent with that plan.

#### **A5. Problem Definition/Background**

##### **Rationale for initiating the project.**

Currently, state and federal laws and regulations drive priorities for environmental management and expenditures through a one-size-fits-all process. Previous efforts to look beyond compliance have been limited to voluntary actions by progressive companies. There are programs in place, such as Performance Track, to provide incentives to such companies. The fact remains that only a few companies have taken advantage of these incentives. Several environmental managers at Washington pulp mills have indicated that although they are interested in ISO certification or in just having an EMS as a way to do their job more effectively, they have met internal resistance or perceive that the cost of an EMS does not justify the expense. More importantly, it is the companies who do not qualify for Performance Track (i.e. those with compliance problems) that we need target.

##### **Project goals and objectives.**

The goal of the footprint project, ultimately, is to improve the effectiveness of state permitting and non-regulatory efforts at complex facilities by moving away from media specific compliance measures toward sustainability measures of environmental, economic and social objectives. Focusing on the measurement of the environmental footprint allows a more direct measure of the effectiveness of any strategy, project or activity designed to reduce the footprint. Once the footprint has been vetted by the stakeholders, it can be used to identify opportunities, projects, or activities to reduce the footprint. Footprint measurement will put a spotlight on the need for companies to pursue opportunities for saving energy, water, materials and money, i.e. those areas where compliance alone is not enough. It will add rigor to the use of environmental management systems already in place. Permitting and other regulatory work can be tied more directly to real environmental improvement. The project will focus on 8 to 12 pulp and paper mills in Washington and will produce:

- a benchmark or baseline for each facility evaluated,
- a baseline for the sector,
- a basis for comparison between facilities, and
- a comparison of the performance of facilities with an EMS in place to those without an EMS.

Proposed short, intermediate, and long-term performance (outcomes) for the project at this time includes:

**Figure 2: Short, Intermediate and Long-Term Outcomes**

<b>Short-term</b>	<b>Intermediate</b>	<b>Long-term</b>
Increased understanding of the interrelationships between media at regulated facilities by Industrial Section and facility staff	Improved use of compliance data in assessment of facility performance. The effect of new projects on the overall footprint can be assessed	Improved environmental priority setting, where projects are designed to reduce the footprint
Increased understanding by the affected communities of the interrelationships between media at local pulp mills	Effectiveness of EMS at pulp mills assessed	
Create an energy challenge for the pulp and paper sector within Washington	Community members understand the trade offs and opportunities at local pulp mills	Community members have a voice in priority setting
Greater awareness of regulated community on advantages of holistic footprint measure	The footprint tool is used to measure the success of the measures taken	Facilities continue to implement energy reducing measures
	Incentives in permitting identified	Demonstration of use of incentives in permitting
	Consistency issues in permit issuance, interpretation and enforcement through footprint measurement identified	Consistency in permit issuance, interpretation, and enforcement demonstrated
	Feasibility of permit changes based on footprint evaluated	Permit changes piloted

**A6. Project/Task Description**

**Project Overview.**

The project will be conducted over a three year period beginning from the date of the official grant award (~April, 2006) through April, 2009. A project team comprised of two very experienced pulp and paper engineers, the Industrial Section pulp and paper Unit Supervisor and the Industrial Section Manager will be formed. The team will serve in an advisory capacity as the technical experts on permitting, data collection/analysis and related issues. The project manager will supervise the project work, ensuring that project activities are completed, milestones are met, and other grant requirements are fulfilled. The project coordinator will be



responsible for the day-to-day project activities. Services of an expert on data analysis and management as well as public involvement, will be contracted to support project activities.

The project team will solicit the participation of 8-12 pulp and paper facilities. If participation by the 8 major chemical pulp mills cannot be secured, the project team will seek recommendations from the respective programs, and facilities will be contacted based on these recommendations.

Quarterly reports will be prepared for EPA detailing completion of project milestones, expenditures of funds, important outcomes, and unexpected problems or issues. A final project report will be provided both to EPA Region 10, EPA and to NCEI. The final report will include an assessment of the overall success of the project and address issues and lessons learned. Project reports and other information will be maintained on a project web page on the WDOE web site. Abstracts and papers, power point presentations and other materials will be prepared for presentation at appropriate forums. Below is the project schedule followed by a more detailed description of the activities listed in the schedule.

**Project work schedule.**

**Key Milestones-** these dates assume the grant is awarded by April 1, 2006.

Completion Date	Activity
April 1, 2006	Initiate hiring of staff to support project
June 1, 2006	Issue RFP to procure contractor support for data analysis and public involvement
September 1, 2006	Complete contractor selection
September 30, 2006	Complete draft of sector indicators, develop and implement an energy challenge for the pulp industry
December 31, 2006	Partner with industry to finalize sector indicators, obtain commitment from at least 8 mills to complete individual facility specific footprints
June 30, 2007	Complete selection of indicators for 8 mills, develop public involvement plan to obtain feedback from community and other stakeholders
October 31, 2007	Complete data collection and public involvement plans for 8 pulp mill footprints
February 28, 2008	Complete draft baseline footprints for 8 pulp mills, complete a draft sector baseline footprint, conduct public involvement in 8 communities
May 31, 2008	Finalize footprints for 8 mills
September 30, 2008	Draft final report including comparison of mills to each other, comparison to the sector baseline and comparison of mills with and without an EMS in place.
December 31, 2008	Assess results of energy challenge
April 30, 2009	Complete the final Industrial Footprint report, share with all stakeholders

## Project Workplan

### **Objective 1-** Procure project support

*Task 1.1* Hire an Environmental Specialist 1 to serve as project coordinator.

The role of this person will be to develop a RFP for contractor support, coordinate and track internal resources and expenditures, and track work being done by other states and countries.

*Task 1.2* Hire a contractor to manage and analyze the data, create the footprints and conduct public involvement activities. Anticipated activities to be completed by the contractor include data collection and analysis, development of draft and final footprints for both the sector and for at least 8 individual facilities, development and implementation of public participation efforts for at least 8 individual facilities, and report preparation.

*Timeline.* Hiring of a project position will be completed within 2 months of the grant award (see estimated project schedule, above). The contractor will be selected within 6 months of the grant award.

### **Objective 2-** Develop energy challenge

*Task 2.1* Gather data on energy use by at least 8 pulp mills.

*Task 2.2* Create the basic elements of an energy challenge for the pulp mill sector. Secure the support of at least 8 mills. Collaborate with the industry to finalize the elements of the challenge.

*Timeline.* Complete the development of the challenge within 6 months of the grant award.

### **Objective 3-** Select sector indicators

*Task 3.1* Research performance measures for pulp mills. Develop draft sector indicators in collaboration with EPA pulp and paper experts.

*Task 3.2* Seek input from the industry on sector indicators. Finalize sector indicators.

*Task 3.3* Secure commitment from at least 8 mills to participate in the individual footprint project.

*Timeline:* Complete Objective 3 by December 31, 2006.

### **Objective 4-** Select facility specific indicators for at least 8 pulp mills

*Task 4.1.* Prepare and implement a public involvement plan for at least 8 pulp mills. Plans may include establishing a citizen's advisory panel, use of focus groups or other methods. The goal of these plans is to educate the community about the mill and to gain credibility so that future decisions are understood and citizen's concerns can be addressed.

*Task 4.2.* Develop a final set of indicators for each participating mill.

*Timeline:* Complete development of indicators by June 30, 2007.

### **Objective 5-** Complete individual and sector footprints

*Task 5.1.* Gather data to create a baseline footprint for each participating mill. The data needed to create the sector footprint will be a subset of the individual footprints.

- Task 5.2.* Create at least 8 individual baseline footprints as well as a sector baseline.
- Task 5.3* Seek community input for each of the individual footprints. Finalize each footprint.
- Task 5.4* Use both the sector indicators and the facility indicators to assess the results of the energy challenge.
- Timeline:* Complete baseline footprints by May 31, 2008.

#### **Objective 6- Comparison of mills**

- Task 6.1* Draft final report including comparison of mills to each other, comparison of each facility to the sector baseline and comparison of mills with and without an EMS in place.
- Task 6.2.* Seek public input on the draft. Finalize the report.
- Timeline:* Complete the final report by April 1, 2009.

#### **Geographic focus.**

This project will be implemented with pulp and paper facilities located within Washington. When the participating facilities have been selected, the QAPP will be updated to reflect the specific geographic locations of these facilities. Because of the global nature of the pulp and paper industry, even a focus on a footprint of a Washington facility could be legitimately expanded to include measures of activities that take place outside the state or the country (e.g. logging operations in Canada). This project will focus only on activities that take place within Washington's borders.

#### **Resource and time constraints.**

The project schedule was developed so that task activities could be accomplished within the stated time frames, provided current staffing and budgetary circumstances remain constant. It is expected that no new environmental data collection will be required. Should any changes take place in the resources devoted to this project, the Work Plan and QAPP will be amended accordingly.

#### **A7. Quality Objectives and Criteria**

##### **Detailed performance measures.**

Ultimately, the goal of the Industrial Footprint project is to develop a holistic measurement tool to help both the regulators and the regulated make better use of resources and effect a better environmental outcome than what is currently possible through a single media permit.

This project will be considered a success if the footprint measurement tool is:

- credible- to the community, the state, the facilities and EPA
- broad - includes all major environmental impacts and can be adopted to measure economic and social impacts as well
- robust- can be used as a sector or facility measure and can be used to compare similar facilities
- cost effective- data gathering and analysis costs are reasonable

- safe- the need for proprietary data is minimized
- transferable- the tool is useful for other facilities
- informative- changes the way environmental performance of facilities is evaluated

Assessment of these goals will be done through a survey of stakeholders.

Facility and sector specific indicators are the outcomes of this work. However, we do expect all footprints to include measures of energy use, water use and greenhouse gas production. Subsequent applications of the footprint tool to measure the success of footprint reducing activities will also include these measures.

Specific measures may change as the project evolves. Revisions to them will be submitted as a QAPP amendment.

#### **Quality objectives.**

It is expected that this project will rely on secondary data (data previously collected for a different intended use). Data collection will depend on the facilities that are selected to participate in the project and the facility specific indicators selected for each. Once these facilities and indicators are identified, specific data quality objectives will be provided as an amendment to the QAPP. The amendment to the QAPP will ensure that the data quality is appropriate for this type of study.

#### **A8. Special Training/Certification**

WDOE will utilize existing data of the agency including monitoring, sampling, reporting, compliance certifications, inspection reports, and other information on the participating facilities as required by their permits.

The Project Advisory Team will work with the project coordinator and the consultant to ensure that secondary data collection and analysis follows established procedures. The Project Advisory Team will be comprised of experienced permitting/compliance staff whose responsibilities include program data collections, analysis and retrieval. The Project Manager will ensure that the project consultant receives in-person training on the appropriate data sources, data collection and quality assurance procedures.

#### **A9. Documents and Records**

##### **Report format/information.**

The format for reporting will be consistent with the requirements and procedures used for data validation and data assessment described in this QAPP.

##### **Document/record control.**

The project will collect and use both electronic and paper submissions of facility information and data. Reports, data and other information may also be generated from program databases (e.g. water quality-WPLCS, air quality-AFS, and hazardous Waste- RCRA-Info) or from unannounced inspection reports will be used.

The Quality Assurance Officer and the Project Manager shall retain all updated versions of the QAPP. The Project Manager shall be responsible for ensuring that the QAPP is updated and distributed to the Quality Assurance Officer, the Project Advisory Team and project staff, and to EPA. The Project Manager shall retain copies of all reports, memoranda, and all correspondence generated as a result of the project between project personnel and with participating facilities.

**Other records/documents.**

Records and documents that may be collected in conjunction with this project include:

- Inspection reports and checklists
- Warning letters, notices of violations, compliance schedules, enforcement orders
- Permits, including effluent limits and air emissions limits
- Monthly reports, engineering reports, waste characterizations, monitoring records, sampling results, annual certifications etc. as may be required in facility permits
- Facility EMS information including 3<sup>rd</sup> party EMS audits (currently 3 out of 8 Washington pulp mills have an EMS in place)

Records and documents that will be produced in conjunction with this project include:

- A pulp and paper sector baseline footprint
- 8 – 12 individual pulp mill baseline footprints
- Reports/analyses of footprint indicators as a permitting tool
- An assessment of the difference between the baseline footprint of facilities with and without an EMS in place
- An assessment of the results of the energy challenge
- Quarterly progress reports and final report to EPA
- Presentations, papers and project abstracts

**Storage of project information.**

Project files, records, and other documentation related to the project will be maintained in the Industrial Section files for a minimum of three years after completion of the grant in April, 2009. Electronic files will also be maintained for a minimum of three years after the completion of the grant.

**Backup of electronic files.**

All electronic files will be maintained on the agency network server and are backed up daily.

**B. DATA GENERATION AND ACQUISITION**

**B1. Sampling Process Design**

The project is based on the collection and analysis of facility data in order to produce both the sector and at least 8 individual footprints. These baseline measurements are the product of this project and will be developed using the *Facility Reporting Project (FRP) Pilot Draft Sustainability Reporting Guidance* as a starting point. Our ability to complete the footprints will likely require data that only the facilities can generate. The sector footprint will specify

indicators that will be common to all pulp and paper mills individual footprints and will include measures of energy use, water use and greenhouse gas production. Indicators for the individual footprints will be developed through a stakeholder involvement process. As the data quality objectives are refined, this QAPP will be amended accordingly.

**B2. Sampling Methods**

It is not expected that sampling methods will be used. The success of the footprint as a useful tool in setting priorities will be assessed using a survey of participating facilities and communities. As the data quality objectives for this effort are refined, this QAPP will be amended accordingly.

**B3. Sample Handling and Custody**

Sampling handling and chain of custody is not relevant to this project.

**B4. Analytical Methods**

No physical tests or chemical analyses are anticipated for this project. If such analyses are to take place, the plan will be amended for EPA approval prior to the analyses being undertaken.

**B5. Quality Control**

No environmental samples/lab analyses are expected to be undertaken for this project. If this changes, the QAPP will be amended and submitted for EPA approval prior to commencing this work.

**Data anomalies.**

Procedures for handling data anomalies (such as outliers and missing data) will be handled based on the guidance prepared for project-specific methodology.

**Quality control statistics.**

See D.3.

**B6. Instrument/Equipment Testing, Inspection and Maintenance**

This section is not relevant to this project. The project will not involve such scientific instruments and equipment.

**B7. Instrument/Equipment Calibration and Frequency**

This section is not relevant to this project. The project will not involve such scientific instruments and equipment.

**B8. Inspection/Acceptance for Supplies and Consumables**

This section is not relevant to this project.

**B9. Non-Direct Measurement (i.e. Secondary Data)**

This project will rely upon secondary data of the facilities participating in the project.

Once identified, the participating facilities' permits, EMSs and other relevant documents will be analyzed. Data sources for facility permits include the permit applications and issued permits, and any compliance, monitoring, sampling, certifications, or other reports required to be submitted to the Department by the permit. Permitting information is maintained in the files of the Industrial Section. Federal databases that may also be used include AFS, RCRA Info, and PCS. Enforcement files and enforcement data may also be accessed and include, EPA's OTIS and IDEA databases. TRI (Toxic Reduction Inventory) and Pollution Prevention plans will be evaluated. For RCRA permitted facilities, data may include waste characterizations and soil and groundwater sampling results. These facilities are required to submit QA plans as part of their work plans and are also required to use certified laboratories. The participating facilities with an EMS in place will be asked to provide information on their EMSs, including data required by the EMS and any internal and/or 3<sup>rd</sup> party EMS audits and audit reports.

This project also requires a significant amount of information on facility resource use (water and energy, primarily) as well as information regarding greenhouse gas emissions. These data are not reported to the agency and will have to be obtained directly from the facilities or through a surrogate measure. Data and measurement quality objectives will be developed as part of selecting the final set of indicators.

Non-environmental data needs include economic and social indicators such as taxes paid and contributions to the community. Again, once the final indicators are selected, data quality objectives can be determined. This QAPP will be amended as needed, once the indicators have been selected.

**Table 3. Non-Direct Measurements (i.e. Secondary Data)**

<b>DATA SOURCES</b>	<b>INTENDED USE</b>	<b>RATIONALE FOR USE</b>	<b>ACCEPTANCE CRITERIA</b>
Pollution Prevention/TRI/Emission Inventory data bases	Identifying commonalities, opportunities, and likely community concerns	Databases used by all WDOE facilities required to submit these reports	All data accepted for intended uses.
WDOE and EPA databases for permit information of participating facilities (WPLCS, RCRA-Info, AFS)	Identifying applicable permits and requirements of	Database used by all WDOE permitting programs for	All compliance data accepted

	participating facilities	regulated facilities	
Facility EMS and required documentation including internal and external audits	Development of sector and individual footprint baselines	Facility is responsible for maintaining EMS and related audits and certifications	
Facility reports regarding energy, water and other materials used	Development of sector and individual footprint baselines	Accurate data is not publicly available	Criteria will be developed as part of indicator selection process
Facility reports regarding economic and social impacts	Development of sector and individual footprint baselines	Accurate data is not publicly available	Criteria will be developed as part of indicator selection process

**Key resources/support facilities needed.**

Data access and resulting data will be managed within the database created by the consultant as part of the overall project. WDOE does not anticipate any access or use issues regarding this approach.

**Determining limits to validity and operating conditions.**

The EMS consultant will maintain the footprint database during the life of the contract.

**B10. Data Management.**

As part of this project, WDOE, with the assistance of the project consultant and the WDOE Quality Assurance Officer, will develop a data management strategy, and amend the QAPP to reflect this strategy. The Project Manager is responsible for ensuring that the strategy is developed and the QAPP is amended accordingly. The strategy will be consistent with the existing WDOE QMP. Once amended, the QAPP section on data management will provide information on the following issues:

- Data management framework;
- Standard record keeping and tracking, and document control;
- Data handling procedures that will be used to process, compile, analyze and transmit data;
- Individuals responsible for data management elements; and
- Process for data archival and retrieval.

**C. ASSESSMENT/OVERSIGHT**

**C1. Assessment and Response Actions**

Once final indicators have been selected (for both the sector and individual footprints), the Quality Assurance Officer will review and approve the amended QAPP. If necessary, The QA



Officer will report findings to the Project Manager who will take necessary action, if any is required, before the data collection task begins. The Project Advisory Team and the consultant will work together to verify and validate all the collected data for compliance with the Acceptance Criteria (defined in the amended QAPP) prior to the data assessment. Data assessment methods will be specified in the amended QAPP and will be approved by the QA Officer prior to their use. The Project Manager and the QA Officer will work with project staff and facility participants to identify any expected or unexpected problems and needed responses, if necessary.

**C2. Reports to Management**

Reports that will be generated during the project include: amendments to the QAPP; quarterly progress reports; 1<sup>st</sup> year report, and final project report. Progress reports will note the status of project activities and identify any QA problems encountered and the response thereto. The final project report will include data analysis, conclusions drawn, data gaps identified, and any limitations on the data used.

**Table 4. Project QA Status Reports**

<b>Type of Report</b>	<b>Frequency</b>	<b>Preparer</b>	<b>Recipients</b>
Amended QAPP	As appropriate, and before data collection begins	Project Coordinator with Consultant	All recipients of original QAPP
Progress Reports	Quarterly	Project Coordinator	EPA Project Officer
Yearly Report	End of Year 1	Project Consultant and Project Coordinator	EPA Project Officer, Project Staff, Stakeholders
Final Project Report	End of Project	Project Consultant and Coordinator	EPA Project Officer, Project Staff, Stakeholders

**D. DATA REVIEW AND EVALUATION**

**D1. Data Review, Verification and Validation**

This QAPP shall govern the operation of the project at all times. Each responsible party listed in Section A.4 shall adhere to the procedural requirements of the QAPP and ensure that other personnel do the same.

This QAPP shall be reviewed as necessary, but no less than annually, to ensure that the project will achieve its intended purposes. All the responsible persons listed in Section A.3 shall participate in the review of the QAPP. The Project Manager and the QA Officer are responsible for determining that data are of adequate quality to support this project. The project will be

modified as directed by the Project Manager. The Project Manager shall be responsible for the implementation of changes to the project and shall document the effective date of all changes made.

Decisions regarding any unanticipated changes to the project will be made by the Project Manager who shall authorize all changes. Any significant changes shall be noted in the next scheduled report to EPA, and shall be considered an amendment to the QAPP. All verification and validation methods will be noted in the analysis provided in the final project report.

## **D2. Verification and Validation Methods**

To confirm that QA steps have been handled in accordance with the QAPP, a readiness review will be conducted before key data collection activities are undertaken. The reviews will be consistent with WDOE's Quality Management Plan.

## **D3. Evaluating Data in Terms of User Needs**

This section will be written and finalized after selection of sector and individual facility indicators and will be developed consistent with WDOE's *Quality Management Plan (approved September, 2005, Publication no. 05-03-031)* and WDOE's *Guidance for Preparing Quality Assurance Project Plans for Environmental Studies (July, 2004, Publication no. 04-03-030)*. The amended QAPP will address methods to resolve or account for any issues that arise from investigating the data, including, limits on data usage, the need for new data collection or analysis, and the need to use data with caveats.