Trend and Comparative Profile of NEPA Considerations in the Saginaw River Basin

Pilot Phase Report

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1.1 INTRODUCTION

On June 17, 1985, USEPA issued Delivery Order No. 009 entitled An Evaluation of NEPA/Construction Grant Impact Predictions in Three River Basins. During the next 4 weeks, SAIC assembled the appropriate staff and prepared the first major deliverable, the Plan of Study. Due to the substantial uncertainties within the Delivery Order tasks regarding the estimates for data collection and the utility of procedures and evaluation forms described in the Manual for Evaluating Predicted and Actual Impacts of Construction Grants projects, SAIC divided each Delivery Order task into several subtasks, then estimated time and labor hours accordingly. The resulting Plan of Study, submitted to USEPA July 15, 1985, extended the end date of the project by approximately 3 months and nearly doubled the costs.

A telephone conference call on July 19, 1985, between USEPA and SAIC (Schaumburg and McLean), was arranged to discuss the Delivery Order and the Plan of Study and attempt to resolve the differences between the two. It was mutually agreed that in order to reduce the uncertainties of the Delivery Order, it would be modified to provide for a "Pilot Phase" in which the Saginaw River Basin containing about 15 projects would be used to assess the data collection procedures, the evaluation form and the computerization/analytical software. The Pilot Phase was to be concluded with this report of findings and recommendations which will be the subject of a subsequent meeting between USEPA and SAIC.

A follow-up letter from SAIC to USEPA (July 24, 1985) documented the results of the telephone conference and provided recommended language for modifying Delivery Order No. 009. On July 30, 1985 in a telephone conversation between Larry Adams (USEPA-Project Monitor) and Jim Williamson (SAIC-Project Manager), Larry indicated basic agreement with the recommended modifications and asked that SAIC proceed with the data collection and software development tasks of the Pilot Phase while the amendment to the Delivery Order was being processed. SAIC complied with this request. Delivery Order 009, Amendment No. 1 was subsequently received by SAIC on September 11, 1985.

1.2 STUDY PURPOSE

The purpose of the Pilot Phase study is to perform a preliminary portion of the work described in Tasks 4, 5, and 6 of D.O. 9 (Modification No. 1), for a small sample of projects. The Saginaw River Basin projects were subsequently selected as the preliminary study sites for this pilot phase. The objectives are to:

- Determine the accuracy and completeness with which planning and environmental review documents (NEPA documents) assessed predicted environmental effects of Construction grants projects
- Identify the types of problems encountered in following the methodology described in A Manual for Evaluating Predicted and Actual Impacts of Construction Grants Projects
- Provide recommendations for overcoming the identified problems
- Estimate the time and costs required to complete the various parts of the evaluation process, and provide an estimate of cost and time required to complete the remaining 60 projects.

2.0 SCOPE OF ISSUES EXAMINED

2.1 DESCRIPTION OF WORK TASKS

Since the Pilot Phase tasks were initiated on or about August 1, 1985 and the Delivery Order Amendment was not received until September 11, 1985, the work was guided by: 1) original Delivery Order No. 009, 2) SAIC's letter of recommended modifications dated July 24th, and 3) conversations between SAIC staff and USEPA. Tasks 2, 3 and 4 as modified by items 2 and 3 above were carried out and formed the basis of this report.

2.1.1 Task 2 (Modified)

Task 2 was Produce an Interactive Program for Machine Readable Evaluation Form. This task remained unchanged from the original Delivery Order and read as follows:

> A routine interactive program shall be developed by the Contractor to allow a video presentation of the Evaluation Form on an IBM-AT or compatible micro-computer. Data entered shall be convertable to data sets, readable via Time Sharing Option (TSO) for Statistical Analysis System (SAS) and vice versa. Storage of the Narrative Reports shall be designed to telecommunicate with the Lexitron Word Processor. Discussions with the Project Monitor and the Agency's ADP staff are essential.

No additional interpretation of this task was necessary.

2.1.2 Task 3 (Modified)

Task 3 was Research and Document Baseline Information (from USEPA and State Files). The task also remained unchanged from the original Delivery Order except the number of sites would be limited to 15, all in the Saginaw River Basin. This task read as follows:

> The Contractor shall use the Evaluation Forms to collect data according to the procedures provided in the Manual (Chapter II). EPA in-house data sources consist of NEPA documents, including amendments, as defined in the Manual. These data are to be supplemented, when necessary, with any other related documents and interviews of State and EPA resource persons. These data are to be transcribed onto the Evaluation Forms and will serve as the data base of historical baselines per project, of predictive statements, and of arrays of projects identifiers and geolocators. From

the Evaluation Forms, the data shall be encoded to the interactive program for machine readable evaluation forms (see Task 2, above). Due to the sort formats of the computerized Evaluation Form, all data gathering shall be consistent with the machine-readable format. This is necessary in order to assure uniform data collection, particularly when multiple responses are possible per type of data. For example, item 5, (Location) on the Evaluation Form includes three project locators: river basin, State, and latitudinal/longitudinal coordinates. The interactive program will sort on each of the three locators, so the transfer of data to the Evaluation form may require a transcribing procedure.

This task is open to much greater interpretation than Task 2. For example, the first sentence refers the Contractor to procedures in the Manual. Beginning on page II-4, Evaluation Steps 1, 2 and 3 apply to this task. Step 1 is to Identify Appropriate Data Bases. This requires the reviewer to first determine which issues from the NEPA documents are to be evaluated. From discussions between SAIC staff and USEPA, it was determined that all 12 issues are potentially to be examined for the 15 projects (Pilot Phase) and the 55 projects (Second Phase). For any specific project, the issues examined were to coincide with, but not be limited to, the impacts predicted in the NEPA documents. Thus, examinations of all 12 issues for each project were possible. This meant that, according to the instructions in the Manual, well over 100 sources of baseline information in the 5 states were possible including Federal, State and Regional or local offices. Based on SAIC's review of the labor estimates for this project, an intensive, baseline data collection effort of this magnitude was not indicated.

Sentences 2 and 3 of the Task go on to identify the sources of "data" to be EPA inhouse NEPA documents which "...are to be supplemented, when necessary, with any other related documents and interviews of State and EPA resource persons." Phrases such as "are to be supplemented, when necessary" and "other related documents" are open to substantial interpretation.

2.2 ACTUAL SCOPE OF WORK

The initial evaluation of the Saginaw River Basin projects involved the identification and collection of NEPA documents in EPA Region V files and assessing the environmental issues identified in these reports. The majority of the documents were negative declarations, and subsequently contained only a

minimum of information required for the evaluation process. This data was transcribed onto the Evaluation Forms and distributed to the field personnel for verification during the project site visits. The data collected from the documents and the field investigations were subsequently entered into the dBase III microcomputer program file. The data was not uploaded to the mainframe, as comments concerning the data collection effort and data transcription had not been received from EPA.

Upon review of the data, EPA determined that the data collection effort to date was not yet sufficient enough to provide an accurate estimate of the time and costs involved in following the evaluation process outlined in the Manual. SAIC agreed to continue its baseline data collection efforts and to upload the initial data to the mainframe. The data would then be properly loaded into SAS data sets.

A summary of the time and costs involved in completing the evaluation process outlined in A Manual for Evaluating Predicted and Actual Impacts of Construction Grants Projects are presented in Tables 1 and 2.

Table 1. Summary of Cost and Effort Required for Evaluating 14 NEPA Considerations According to A Manual for Evaluating Predicted and Actual Impacts of Construction Grants

Name	Classification	Professional level	Tasks: Project management	Baseline data collection: Documentation	Baseline data collection: Field	Computer processing: dBase	Computer processing: Uploading	Computer processing: SAS programming
Jim Williamson	Project Manager/Biologist	4	179	49				
Andrew Freeman	Socioeconomist	3		17				
Denis Borum	Biologist	1		10	40			
Steve McComas	Biologist	3		35	50			
Terry Grist	Biologist	2		10	40			
Kathy Harrigan	Environmental Scientist	2		10	40			
Ann Witzig	Statistician/Project Manager	2	80			3	3	2
Fariba Koshnivassan	Other Technical Specialist	3				19		
George Wilkie	Computer Specialist	3					2	8
Levan Phan	Other Technical Specialist	2						5
Seth Ausubel	Biologist	2		40				
Cecil Cross	Environmental Scientist	2		40				
Barbara Menking	Environmental Scientist	2		40				
TOTAL HOURS			257	249	170	22	5	15

Table 2. Estimate of Cost for Pilot Phase Report

Personnel	Hourly rate	Number of hours	Total labor cost
Jim Williamson	$34.63	49	$ 1,696.87
Jim Williamson	44.93	179	8,042.47
Andrew Freeman	28.37	17	482.29
Denis Borum	20.43	50	1,021.50
Steve McComas	27.81	85	2,363.85
Terry Grist	27.81	50	1,375.00
Kathy Harrigan	25.29	50	1,264.50
Ann Witzig	25.29	8	2,225.52
Fariba Koshnivassan	19.40	19	368.60
George Wilkie	33.01	10	330.10
Levan Phan	19.40	5	97.00
Seth Ausubel	25.29	40	1,011.60
Cecil Cross	25.86	40	1,034.40
Barbara Menking	25.86	40	1,034.40
TOTAL			$22,348.10
ODCs			$ 1,496.29

Total D.O. Ceiling	$79,443.94
Pilot Phase	22,348.10
Remaining	$57,095.84

Pilot Phase: 28%

3.0 FINDINGS

3.1 PRESENTATION OF DATA

The data collected according to the methodology in the manual is presented in several different formats. To save space, these printouts are listed in Appendix A. The programs to date include:

- o A SAS listing of all data entered onto the evaluation forms (EVALUATION FORM Data List)
- o A SAS listing of questions 1 through 6, sorted by parameter, location, and environmental issue (Print. Test)
- o A SAS listing of the predicted environmental impacts, sorted by parameter, location, and environmental issue (Print. Test 2)
- o A SAS listing of the facility number, grant number, and baseline conditions, sorted by parameter, location, and environmental issue (Print. Test 4)
- o A SAS listing of the facility number, grant number, and predicted impact for end of planning period, sorted by parameter, location, and environmental issue (Print. Test 5)
- o A SAS listing of the facility number, grant number, and predicted impact for the current year, sorted by parameter, location, and environmental issue (Print. Test 6)
- o A SAS listing of the facility number, grant number, and actual current conditions, sorted by parameter, location, and environmental issue (Print. Test 7)
- o A SAS listing of facility number, grant number, data base for actual conditions, and summary code, sorted by parameter, location, and environmental issue (Print. Test 8)
- o A SAS listing of facility number, grant number, and summary paragraph, sorted by parameter, location, and environmental issue (Print. Test 9).

3.2 PROBLEMS ENCOUNTERED DURING THE EVALUATION PROCESS

The overall purpose of this pilot phase project was to identify potential problems encountered during the evaluation process, and to provide recommendations for completing the remaining 55 project investigations. The evaluation process has subsequently been divided into four major tasks to facilitate

problem identification and review: baseline data collection, field data collection, data transcription and computer processing, and overall review of the Manual for Evaluating Predicted and Actual Impacts of Construction Grants Projects.

3.2.1 Baseline Data Collection

The GICS Listing of Basin Projects:

- Is not consistently accurate in its listing of projects in the basin
- Does not necessarily represent all projects constructed or under construction
- Lists NEPA actions on projects which may have been amended substantially prior to construction where the Grant No. cannot be relied upon to give positive identification to a project.

  Of the list of 15 projects, one project (Summit Township-C262899) is located in Mason County on the Shoreline of Lake Michigan some 150 to 200 miles away from the Saginaw River Basin. This leads one to question whether or not there are Saginaw River Basin projects which are listed in the wrong river basin or not listed at all. A brief review of MDNR's MPL shows the following projects which may have had NEPA actions taken:

Name	Grant Number
Saginaw Co./Saginaw Twp.	263396
Saginaw Co./Richland Twp.	263104
Clare	262942
Midland	263416
Saginaw, City of	262723
Flushing	263115
Ithaca	263102
Bay Co./Portsmouth Twp.	263326
Saginaw Co./Zilwaukee, Carrollton	262723
Saginaw Co./Frankenmuth	262723
Saginaw Co./Buena Vista	262723
Wheeler Twp.	263324
North Star Twp.	263369
Clare Co./Hayes Twp.	262802
Midland Twp.	262917

  Projects completed before 1984 would not be listed in the MPL so the list could be longer. Upgrade of the City of Flint WWTP would be an example.

- GICS Transaction Number 92 represents "Percent WWT Construction Complete." The code of "CP" is defined as "100% completion of the

physical construction." This information appears inaccurate and misleading. Of the 14 Saginaw River Basin projects, 9 were coded CP while the remainder were supposed to be greater than 80% complete. In fact, Genesee Co./Fenton-C262710, Genesee Co./Atlas-Goodrich-C262919, Oakley-C262878 and Vassar-C262851 were found to have never started construction.

- Based on reviews of facilities plans at the offices of MDNR, even the least complex projects may have had several facilities plans and/or amended facilities plans prepared. In some cases, amendments resulting in major alterations in a project have occurred after the NEPA document was issued. Due to the manner in which records are kept at both the MDNR and EPA, there appears to be no clear audit trail between project inception and project conclusion; NEPA documents do not clearly identify the facilities planning documents upon which they are based. This would allow one to at least review the specific project document(s) associated with a NEPA action.

  Since major changes to a project can occur at several points between issuance of the NEPA decision and the completion of construction (i.e., prior to design, during design, during construction) there is no certainty (other than through careful comparison of the NEPA document/Facilities Plan project descriptions with the constructed project) that the completed project observed during field data collection is the same NEPA project upon which impact predictions were based.

- Until preparation of the interim report, it was assumed by all contractor staff that although the name of a project may be ambiguous (i.e., 3 Genesee County projects listed), the specific project NEPA documents could be positively identified by the EPA Project Number (also called Grant Number). This apparently was not the case. In the case of Genesee County-C262709, MDNR identified this project as Burton/Davison. A Negative Declaration was obtained and a facilities plan was reviewed. Each project identified by the listed grant number. A field data collection visit was carried out and construction of the project was confirmed. Quite by accident, it was discovered that another Genesee County project has the same number; that being Expansion and Upgrading of the Anthony Ragnone WWTP. A check of the EID Review Code and Date (GICS Column M1) indicated a FNSI was issued on 8/29/84, the date of the WWTP project FNSI. Thus, the GICS listed project originally thought to be the Burton/Davison project which had been completed, was later confirmed to be the WWTP upgrade project, which is shown to be 91% complete but which, in fact, has only begun construction.

- Finally, other information provided on the GICS listing is at times inaccurate. For example, the list shows construction start codes and dates in column MO. Construction start dates occur before the FNSI issuance date in eleven projects (extremely unlikely). At least 3 of those projects were never constructed.

In summary, the information provided on the GICS listing is not completely reliable, and possibly incomplete. Reliance on GICS as a major tool for project identification and baseline data gathering must be done cautiously with an understanding of it's potential problem areas.

Although the initial data collector was provided ample time for review of the Manual and prototype reports, and had discussions with the project manager regarding the task, results indicated that more explicit and comprehensive instructions were required for review of the NEPA documents and completion of the evaluation forms in order to promote comprehensiveness and uniformity in the approach.

- It was not initially clear from the Delivery Order that baseline data collection was to specifically include review of project facilities plans. Task 3 states that EPA in-house NEPA documents are to be supplemented, when necessary, with other related documents. The phrase "when necessary" was initially interpreted to mean "in the event NEPA documents were not available in EPA files". Thus, the MDNR was contacted prior to the site visits regarding the Negative Declarations not available form EPA. These were forwarded from the State promptly, thus, a special trip to the MDNR was deemed unnecessary. In addition, each field team was instructed to review facilities plans or other NEPA related documents for additional baseline information if they were readily available from their contacts.

3.2.2 Field Data Collection

- During discussions between SAIC staff and EPA, it was once stated by EPA that the baseline data collection and field data collection should be provided by different persons in order not to bias the field data collection effort. Thus, in order not to bias the field data collectors, it was thought that EPA intended them to work independent of the baseline data collection. The program was set up in this manner.

  Approximately one week prior to field data collection another discussion with EPA revealed that this was not intended; that it was intended that the field data collectors have the baseline data evaluation forms to work from. This caused some scheduling problems at SAIC but the baseline data were completed based on the Negative Declarations obtained and were sent the field data collection team leaders for review prior to the site visits. In addition, copies of the Negative Declarations were also sent, because with the baseline data sheets alone, the teams would still have no idea what the project consisted of, where construction took place or what type of impacts to look for.

Additional Comments:

- Little or no baseline data was available for evaluating the planning area before construction. The facilities plans sometimes contain a very general description of the site. The Negative Declarations sometimes allude to existing conditions, i.e., "the intent of the project is to alleviate groundwater contamination or improve surface water quality." These statements indicate a general degradation of water quality.

o Sometimes, qualitative impacts of significance can be made such as stating no groundwater or well contamination from sludge application has occurred since the Health Department has received no complaints. Similarly, assumptions can be made such as speculating that odor problems have not increased since septic tanks are no longer in operation.

o Although the field data collectors had ample time to review the Delivery Order, (the Manual and the Prototype Reports) and to discuss the task with the project manager, results indicate the need for a set of very comprehensive and specific procedures in order to obtain consistency and uniformity in the data collection effort and in the completion of evaluation forms, between projects and between individual teams.

Field Team Comments-Problem Areas Encountered During Site Investigations

The principle problem encountered during the field investigation stemmed from the lack of quantified impacts as reported in the NEPA documents (Negative Declarations). Many of the impacts were presented in very general terms ("possible induced growth", "enhanced water quality"). This resulted in a dilemma for the site survey team: Should the investigations perform a similar qualitative evaluation or should they try to interpret a quantitative response to the "qualitatively" identified impact? The method resulted in a "reinvention of the wheel," so to speak, whereby the investigators would seek water sampling data for periods prior to and after the project was performed. This enabled the field crew to assess current conditions to determine indeed if "enhanced water quality" resulted from the project.

3.2.3 Data Transcription and Processing

Several problems were encountered during the transcription of data onto the evaluation form, the subsequent sorting of the data as requested in the

D.O., uploading to the mainframe, and finally adjusting the data format to an acceptable SAS format.

Data Transcription

- Consistency in data entry (i.e., by the research teams) is a serious problem. Project name, needs number, grant number, site location, etc., were all completed in a different manner by each individual.

- Item 5 on the Evaluation Form is too vague. The order of the data (i.e., State, river basin, county, etc.) is not specified, nor is the exact phrase for each (i.e., State could be a 2 letter code, river basin could be the river basin number).

- Item 5 should be separated into several distinct variables:

  River Basin Code
  State Code
  County Code
  Township
  Hydrologic Code

  This would permit sorting by these variables.

- Latitude/longitude for the exact plant location should be included.

- Issue and Parameter names were not entered in any consistent manner. This complicates data sorting and possible merging.

- Item 9-Source of NEPA document data, needs to be lengthened for adequate data entry.

- Item 10-Baseline Conditions: The reviewers often extended their narrative paragraphs past the limit of 230 character spaces. The year variable needs 4 spaces.

- Item 16-Regulations in Effect: This was not clear in the Manual as to what EPA was looking for, or why, following conversations with EPA.

- Title and Location of Narrative Report needs either greater space or more specific information for the available space.

Data Processing

- Uploading - The uploading of the data from the dBase III format to the mainframe required splitting the data into character lengths of 130 characters. This required more time and program complexity than expected.

- o SAS Formatting and Printing - The creation of SAS data sets required several hours of programming to design a suitable format statement. In printing the data, only 100 characters at a time can be listed for a single variable. This implies that the paragraphs for items 8, 10, 11, 12, 13, and 15 should only contain 100 spaces for data description. Additional information will be truncated and not printed. To print all of the 230 character spaces, the paragraphs were arbitrarily split at 100 and reprinted as 2 variables.

Data Analysis

The analysis of this data is hampered by the lack of consistency in data entry, the imprecision of the variables (Ex. item 5), and the use of paragraphs for storing information.

- o Sorting - Data is sorted by the first character in a variable, therefore, variables such as item 5 are not useful for a sorting parameter.
- o The program cannot sort as indicated in the D.O., by river basin, State, and latitudinal/longitudinal coordinates. The D.O. also requests sorting the data by all items on the evaluation form. This can physically be done, but it would not produce a usuable result. For example, the paragraphs would only be sorted by the first letter(s) in the paragraph.
- o The extreme length of the single observations (i.e., one evaluation form equals one observation) requires breaking up the data into many separate components for analysis. This is especially bothersome with the paragraphs. The printing of this data is subsequently a messy output.
- o The evaluation form at the present time is really more suited to word processing use than mainframe or microcomputer usage. If the form is only to be printed out verbatum, then a Lexitron Word Processor is far more cost-effective than the awkward programming and limited analysis possible at the present time.

3.2.4 Manual Review

The Manual for Evaluating Predicted and Actual Impacts of Construction Grants Projects provide an adequate first cut at compiling the information necessary to begin an environmental analysis. Some general comments concerning the Manual's ease of use, clarity, and scope are provided to aid further discussions towards future revisions or addendums:

- The Issues chapters are somewhat long and, particularly in the case of water quality, mislead the reader into thinking that an extensive analysis is required.

- The language should be more specific and direct. The use of the phrase "may be necessary", is misleading. Is it or isn't it necessary to retrieve the data in question?

- Types of analysis suitable for each issue should be outlined or references cited; it is not clear where the evaluation process is heading.

- The Data Base Report (Appendix A) is useful, but should these sources of data always be contacted for each project? This would require a fair amount of time and effort.

- The Data Base Management Appendix is inadequate and needs extensive revisions. Obviously, that is part of the objective of this review process.

- There is some difficulty in categorizing topics under the 12 issues. Best judgment was used in deciding how secondary impacts, parameters of issues, and interrelated issues should be categorized. Should groundwater or well contamination and potential odor problems be grouped as parameters of "Solid Waste" when land application is the practice? Or should they be listed as an "Interrelated Issue"?

- The Manual appears to have been designed for the evaluation of larger projects or it at least makes provisions for those types of evaluations. This is why it is difficult to follow the procedures for smaller projects. Many of the issues are not relevant and much of the data which is available and necessary to evaluate larger projects is not available for the type we have been studying.

- Some difficulty was experienced in using one form to include data from more than one literature source. The form does not really lend itself to referencing several documents or quoting information from these.

- There is a general lack of quantitative data to base the evaluations on. Present conditions were often time based on the subjective opinions and observations of the contacted officials.

- No one issue was found harder to evaluate than others. The provided information was the determining factor in the difficulty encountered.

- The Manual is unrealistic in terms of information availability and the time required for data gathering, etc. The time required to follow the manual point to point would be excessive.

- Determining the latitude and longitude of the plan of study area is both time consuming and an apparent waste of effort in contrast to the other requirements.

- The physical environment and energy issues as presented in the manual are difficult to follow. I found the physical environment chapter as inadequate when one considers the typical POTW.

4.0 COMPARISONS

4.1 TRENDS

4.2 DIFFERENCES

This analysis will be provided in the final report.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 BASELINE AND FIELD DATA COLLECTION

- o GICS listing - the GICS printout should be verified for accuracy for all proposed projects. Project identification should involve both the Grants number and the Needs number. Other projects not on the GICS system should be identified through State files.

- o Baseline data collection should be guided with more specific criteria and goals than stated in the Manual. The data requirements (i.e., data sources and contacts) should be clearly stated from the start.

- o Baseline data collectors should also be available to participate in the field investigations. The results of the initial data collection should be provided to the field teams for verification and/or for identification of additional unexpected information.

- o Therefore, it is recommended that a set of very comprehensive and specific procedures be developed to guide baseline data collection and field investigation.

5.2 DATA TRANSCRIPTION

- o Very specific guidance must be developed for completing the Evaluation forms. Consistency in responses and concise descriptions will alleviate many difficulties.

- o Item 5 on the Evaluation should be divided into several variables: River Basin Code, State Code, County Code (FIP's code), Township, Hydrologic Code, and possibly even the STORET code.

- o Although it is not possible to use the latitude/longitude polygon, a single entry for the project's latitude and longitude may allow for sorting by this variable - a FIP's code for county might provide an adequate sorting variable.

- o Several items need to be lengthened and standardized responses developed, for example, data base reference.

- o Paragraphs must be subdivided into 100 character spaces to alleviate inaccurate counting and promote concise, terse responses.

  Comments on the use of paragraphs for data analysis:

  - o Following the paragraph containing the predicted environmental impact, provide a series of questions requiring only a terse response (i.e., yes/no, check-off, etc.)

    For example:

    Was the project carried out? Y/N
    If yes, did it have the expected results? Y/N

If no, why not:

- Name about 8 (or so) broad categories with a 9th cateogry for OTHER (provide a comment field for OTHER).

- Ask for the remaining information:

  reviewers name
  plant superintendent/manager
  date of review
  etc.

- Baseline and Actual Conditions paragraph could be subdivided into specific topics, and then coded for yes/no, etc., type responses.

APPENDIX A

Field Investigation Reports and Narrative Reports

APPENDIX B

SAS Data Listings