

Quality Assurance Project Plan

2016 Forest Practices Act Audit



**State of Idaho
Department of Environmental Quality**

Technical Services

Version 1.0

May 1, 2016

1 Title and Approval Page

Quality Assurance Project Plan

Title: 2016 Forest Practices Act Audit

Region/Division: Technical Services

Version Number: 1.0

Date: May 1, 2016

Approval Signatures

Note: This QAPP becomes effective on the date of the last approval signature.

Program/Regional Manager

Signature:  5-11-2016
 Name: Don Essig, Surface Water Program Manager Date

Project Quality Assurance Officer

Signature:  5/5/2016
 Name: Cara Hastings, Federal Reporting Coordinator, State Office Date
 *Note: At the time of QAPP signature, the project QAO is required to update the DEQ QAO project document tracker, found at TRIM Record #2012AEB8.

Project Manager

Signature:  5-4-16
 Name: Hawk Stone, Surface Water Specialist, State Office Date

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2 Table of Contents

1 Title and Approval Page	3
Quality Assurance Project Plan.....	3
Approval Signatures	3
2 Table of Contents	5
3 Distribution List	7
4 Project/Task Organization	7
5 Problem Definition/Background.....	10
5.1 Problem Statement	10
5.2 Intended Usage of Data	10
6 Project/Task Description.....	10
6.1 General Overview of Project.....	10
6.2 Project Timetable	12
7 Quality Objectives and Criteria	12
7.1 Data Accuracy, Precision, and Measurement Range	15
7.2 Data Representativeness.....	15
7.3 Data Comparability	15
7.4 Data Completeness.....	16
8 Special Training/Certification.....	16
9 Documentation and Records	16
10 Sampling Process Design.....	17
10.1 Rationale for Selection of Sampling Sites.....	17
10.2 Sample Design Logistics.....	18
11 Sampling Methods	18
12 Sample Handling and Custody.....	19
13 Analytical Methods.....	19
14 Quality Control	19
14.1 Field QC Checks	19
14.2 Laboratory Quality Control Checks	19
14.3 Data Analysis Quality Control Checks	19
15 Instrument/Equipment Testing, Inspection, and Maintenance	20
16 Instrument/Equipment Calibration and Frequency	20
17 Inspection/Acceptance of Supplies and Consumables.....	20
18 Nondirect Measurements and Data Acquisition	20
19 Data Management	20
20 Assessment and Response Actions	20

21 Reports to Management 21
22 Data Review, Verification, and Validation 21
23 Review, Verification, and Validation Methods 22
24 Reconciliation with User Requirements 24
25 References 26

List of Tables

Table 1. Project QAPP distribution list 7
Table 2. Key project personnel and associated responsibilities 8

List of Figures

Figure 1. Project organizational chart 9

Appendices

- Appendix A. Project Checklists
- Appendix B. Audit Form

3 Distribution List

At a minimum, the following personnel and analytical laboratory contacts will receive either an electronic or hard copy of the final signed quality assurance project plan (QAPP) (Table 1).

Table 1. Project QAPP distribution list.

Name	Project Affiliation	Organization and Address/Location	Contact Number
Don Zaroban	DEQ Quality Manager	DEQ—Director's Office	373-0528
Don Essig	Program Manager	DEQ—Water Quality	373-0119
Cara Hastings	Project Quality Assurance Officer	DEQ—Water Quality	373-0153
Hawk Stone	Project Manager	DEQ—Technical Services	373-0588
Gary Hess	Project Collaborator	IDL – Coeur d'Alene	666-8628

4 Project/Task Organization

Key project personnel and their responsibilities are defined in Table 2. An organizational chart is provided in Figure 1.

The project staff duties and responsibilities described in Table 2 are not intended to be all inclusive; see sections 1.2.5 through 1.2.7 of the DEQ *Quality Management Plan* (QMP) (DEQ 2012a) for a more detailed description.

Table 2. Key project personnel and associated responsibilities.

Name	Project Title/Responsibility
Don Essig	<p>Program/Regional Manager: Note: The following description is <i>not all inclusive</i>; see section 1.2.7 of the DEQ QMP for a more detailed description. This person is the regional manager or State Office program manager for the project. Duties and responsibilities include:</p> <ul style="list-style-type: none"> • Assists in the review of the QAPP and signs the final QAPP as an approver. • Confirms the project QAPP meets the needs of the program/region. • Ensures the QAPP is approved prior to the start of project work. • Ensures the program/regional procedures and policies referenced in the QAPP are current and approved for use. • Performs all duties and responsibilities as assigned in the project QAPP. • Selects and assigns a project quality assurance officer (QAO), who meets the criteria for independence defined in the DEQ QMP (see QAO duties below), and obtains approval for this selection from the DEQ quality manager.
Cara Hastings	<p>Project Quality Assurance Officer: Note: The following description is <i>not all inclusive</i>; see section 1.2.5 of the DEQ QMP and the project QAPP for a more detailed description. Each project has an assigned QAO, whose duties and responsibilities include:</p> <ul style="list-style-type: none"> • Assists in the review of the QAPP, verifies the QAPP meets the requirements of the DEQ QMP, and signs the QAPP as an approver. • <i>All assigned QAOs are required to contact the DEQ quality manager to discuss the project prior to signing any project QAPP for approval. When the project QAO signs the QAPP for approval, the QAO is required to update the DEQ QAO project document tracker found at TRIM record #2012AEB8.</i> • Performs an annual audit, using the QAO audit checklist located in Appendix A, on all assigned projects to evaluate project compliance with the approved project QAPP. Files the completed audit checklist in TRIM to document the audit. • Provides data validation per the project QAPP, using the appropriate checklist located in Appendix A, and may also participate in final project report review. • Documents all audit and data validation activities in the DEQ TRIM system, per the DEQ QMP and the approved QAPP. • In matters of project quality, this individual has a direct line of communication to the DEQ quality manager. • Must meet the following independence criteria: The QAO shall not be the project manager, program manager, or be otherwise assigned to the project data generation efforts. Neither the project manager nor the QAO may directly report to the other within the DEQ organizational structure, and both of these individuals may not be directly supervised by the same person. • Performs all other duties and responsibilities as assigned in the project QAPP. The duties and responsibilities of the project QAO also apply to any field sampling plan (FSP) generated under the project QAPP, unless an FSP-specific QAO is assigned and approved.
Hawk Stone	<p>Project Manager: Note: The following description is <i>not all inclusive</i>; see section 1.2.6 of the DEQ QMP and the project QAPP for a more detailed description. Each project has an assigned project manager, whose duties and responsibilities include:</p> <ul style="list-style-type: none"> • Serves as the primary author of the project QAPP, and signs the final QAPP as an approver.

	<ul style="list-style-type: none"> • Performs overall project planning, document development and approval, sample planning and coordination, laboratory coordination, reporting functions, project report/summary development, and project file maintenance in TRIM. • Enters the approved and current project QAPP in the TRIM system, including a copy of the signed approval page. • Ensures all project work is conducted in accordance with the DEQ QMP, the approved QAPP, and the applicable project operating procedures. • Ensures that personnel assigned to this project are appropriately trained and qualified, with the corresponding training records on file in human resources. • Performs data review and verification per the project QAPP, using the appropriate checklists located in Appendix A. • Reviews the project QAPP/FSP and standard operating procedures (SOPs) annually to determine if revision is necessary. If the project QAPP, FSP, or associated SOPs do require revision, the project manager initiates such action. All such documents will be revised, reviewed, and approved in accordance with the DEQ QMP. • Documents all audit and data review/verification activities in the DEQ TRIM system, per the DEQ QMP and approved QAPP. • Performs all other duties and responsibilities as assigned in the project QAPP. The duties and responsibilities of the project manager also apply to any FSP generated under the project QAPP, unless an FSP-specific project manager is assigned.
<p>N/A</p>	<p>Laboratory Contact/Manager: This person is the primary contact at the laboratory for DEQ project staff</p>

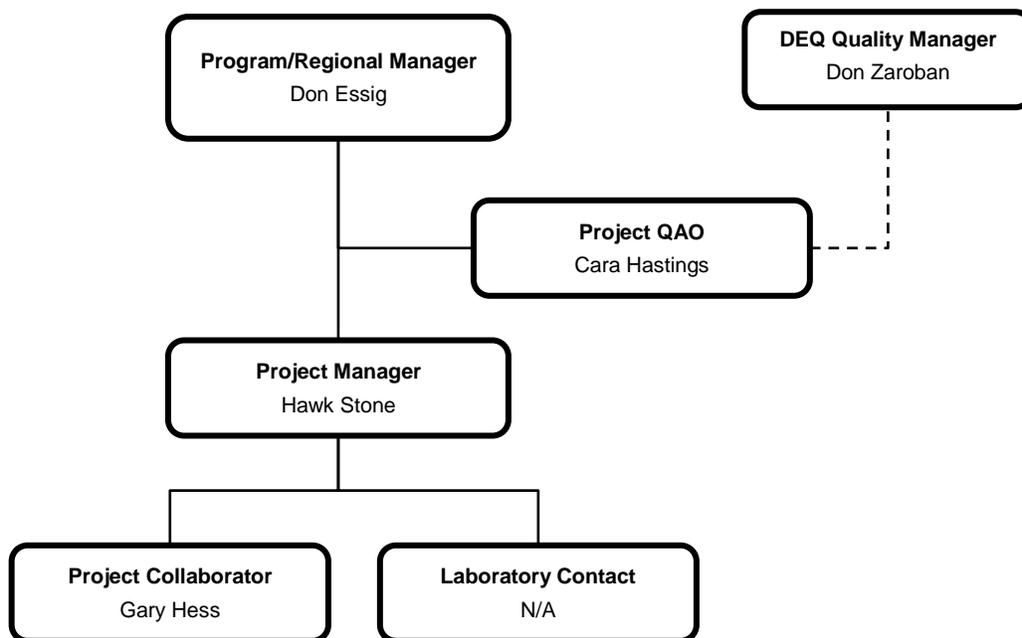


Figure 1. Project organizational chart.

5 Problem Definition/Background

This section describes what will be accomplished and why the project will be done, through discussion of the specific problem to be solved, project background, decisions to be made, and the outcomes to be achieved.

5.1 Problem Statement

The Idaho Department of Environmental Quality (DEQ) and Idaho Department of Lands (IDL) are responsible for ensuring that surface water is protected during and after silvicultural activities. IDL applies and enforces the ‘Idaho Forest Practices Act’ (title 38, chapter 13 Idaho Code), and the rules associated with it (IDAPA 20.02.01)

Once every four years, DEQ audits approximately 40 timber sales to ensure that the rules are being followed. A secondary purpose of the audits is to observe and recommend improvements to the rules.

Timber sales are selected from federal, state and private lands, and the audits are conducted with a multi-agency team.

5.2 Intended Usage of Data

The data collected during the audits will be used to assess overall compliance levels with the forest practices act rules. The data will also be used to suggest improvements to the rules, if appropriate.

The final report will be publically available, and shared directly with the Idaho Forest Practices Act Advisory Committee (FPAAC) and IDL.

The audits are expressly not to be used as enforcement tools for individual timber sales. Enforcement activity rests with IDL, and is conducted as part of the routine timber sale process.

Individual audit data may be shared with the landowner and other directly interested parties.

6 Project/Task Description

This section describes (in general terms) how, when, and where the project will be implemented through a summary of how the work will be performed, what data are to be obtained, where the data gathering activities will occur, and the related projected schedule.

6.1 General Overview of Project

A list of all timber sales conducted in Idaho in the past two years will be used to generate the audit panel. The two-year cutoff is used to maintain consistency with previous audits.

DEQ and IDL will compile a list of every timber sale exceeding 5 acres with cutting units that contain or border at least 500 feet of Class I (fish-bearing) stream in Idaho since January 2014. Class I and II streams are defined in IDAPA 20.02.01.010.60 as follows:

Stream. A natural water course of perceptible extent with definite beds and banks which confines and conducts continuously or intermittently flowing water. Definite beds are defined as having a sandy or rocky bottom which results from the scouring action of water flow. Any reference in these rules to Class I streams shall also apply to lakes. (7-1-96)

- a. Class I streams are used for domestic water supply or are important for the spawning, rearing or migration of fish. Such waters shall be considered to be Class I upstream from the point of domestic diversion for a minimum of one thousand three hundred and twenty (1,320) feet. (11-7-86)
- b. Class II streams are usually headwater streams or minor drainages that are used by only a few, if any, fish for spawning or rearing. Where fish use is unknown, consider streams as Class II where the total upstream watershed is less than two hundred and forty (240) acres in the north forest region and four hundred and sixty (460) acres in the south forest region. Their principle value lies in their influence on water quality or quantity downstream in Class I streams. (7-1-96)

The Department of Lands has a GIS coverage indicating class I or II streams. This coverage will be used to identify candidate sales for audits.

From this list, an audit panel of approximately 40 sites will be chosen. The panel will include ten sites from each class of timber sale (federal, state, industrial and private), and from as many IDL supervisory areas as possible.

Working in a two-member team, staff from DEQ and IDL will visit each audit site and assess compliance with every applicable rule. Land owners, operators and other interested parties will be invited to accompany the audit team. The auditors will look at, amongst other things, roads, culverts, landings, skid trails, equipment, and chemical storage areas. Audits will take place between May and October 2016, and each audit will usually take one field day.

A list of sites audited in 2012 will be used to select up to 20 sites for revisiting. This is intended to audit compliance with replanting rules, and also to assess the effectiveness of the forest rules over the 5-year medium timeframe.

Audit reports will be combined to assess overall compliance with the forest practices act rules. A final report will be completed by the end of 2016 that explains the findings and highlights any problem areas. The report may make suggestions for improvements to the process or rules.

No samples will be collected.

6.2 Project Timetable

This section describes the projected schedule for the major project activities, such as field sampling, data review, and report generation.

November 2015	Contact landowners to get complete list of timber sales
January 2016	Write QAPP
April 2016	Select panel of sites to be audited.
April 2016	Schedule field season. Publish workplan to enable interested parties to participate.
May – October 2016	Conduct audits.
November 2016	Compile data, write final report.
December 2016	Publish final report.

7 Quality Objectives and Criteria

This section of the project QAPP defines the project data quality objectives (DQOs), essentially defining the requirements to support the qualitative or quantitative design of the data collection effort. DQOs are also used to assess the adequacy of the data (new or existing) in relation to their intended use. Data quality indicators (DQIs) are used to describe, in part, the specific measurement elements to be used when evaluating data in support of the project DQOs. Project staff can find additional information and guidance concerning the DQO process and DQI selection and definition in the following reference materials:

- EPA *Guidance on Systematic Planning Using the Data Quality Objectives Process* (EPA 2006c)
- EPA *Guidance for Quality Assurance Project Plans* (EPA 2002a)
- EPA *Requirements for Quality Assurance Project Plans* (EPA 2001).
- EPA *Guidance on Environmental Data Verification and Data Validation* (EPA 2002b)

The objective of quality assurance and quality control (QA/QC) is to ensure that qualitative results obtained by field audits are representative of actual field conditions. Unlike with traditional analytical samples, this kind of work is not suitable for the usual suite of duplicate and blank samples.

Field QA/QC will consist of using a standard audit form and having at least two auditors involved in its completion.

The QAO will inspect the field forms to ensure they adequately address the forest practices act rules.

On at least one occasion, the QAO will accompany the auditors to ensure they are using the audit forms properly.

The QAO may conduct a duplicate audit at one site as an independent confirmation of audit accuracy and completeness.

The concept of *analytical data support* is generally described as having five levels, where Level I is considered minimal QA/QC control/documentation, and Level V is considered the highest available QA/QC control/documentation.

The appropriate type of sampling and analysis for a given project or at a given site depends on numerous factors, the foremost of which are the intended end use of the data and associated data quality requirements. The project manager, in consultation with appropriate regional and state office management, will determine the appropriate “level” of analytical data support.

Since individual laboratories frequently describe the analytical data support provided by their facility in a variety of terms other than “level,” such as “stages,” “classes,” or “packages,” the data levels described herein should only be used as a general guide for project staff when setting project-specific data analytical support requirements with the selected project laboratory. It is the responsibility of the project manager to contact the selected project laboratory to discuss and establish the analytical data support level to be employed for the individual project. Issues to consider when setting these requirements with the project-specific laboratory include the level of QC that the laboratory will employ when analyzing the samples, and equally important, what documentation will accompany the returned results.

The analytical data support level determined to be necessary and appropriate for each project is clearly stated in this section of the project QAPP.

The five levels of analytical support (Levels I and II, field analytical methods, and Levels III through V, laboratory analytical methods) are described below in general terms.

Included in the general description of the analytical data support level is the generally associated and/or corresponding “stage” of data verification and validation to be applied upon receipt of data and documentation by the project from the laboratory. The verification and validation “stages” are described in detail in EPA’s *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use* (EPA 2009).

While a given laboratory may or may not recognize various descriptions of analytical data support levels, the laboratory will likely be able to support the needs of the data user if the “stage” of data verification and validation is also described to laboratory staff. For these reasons, it is strongly suggested that the project manager communicate this information directly to the laboratory during the planning phase to determine the necessary analytical data support (level or package) that the laboratory will provided to the project.

Level I: This refers to field screening or analyses using portable instruments, and results are commonly not compound-specific or quantitative. Generally, Level I data are related to activities

such as locating sample collection points for laboratory analysis and are associated with instruments such as photoionization detectors (PIDs).

- **Generally associated verification/validation stage:** Level I may be associated, depending on data user requirements, with “Stage 1” verification and validation checks as described in Appendix A, Section 1.1, of EPA’s *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use* (EPA 2009).

Level II: This refers to field analyses using more sophisticated portable analytical instruments or mobile laboratories onsite. Data generated can range from qualitative to quantitative (e.g., actual contaminant identification is made, but concentrations may or may not be quantified to a high degree of accuracy). Note that this data may or may not be acceptable for compliance purposes. Restrictions or limitations on the use of such data, if applicable, are stated below. Many types of field equipment—such as a mercury vapor analyzers and/or an X-ray fluorescence (XRF) units—generate data that may (or may not) qualify as Level II data.

- **Generally associated verification/validation stage:** Level II may be associated, depending on data user requirements, with “Stage 1” or “Stage 2A” verification and validation checks as described in Appendix A, Sections 1.1 and 1.2, respectively, of EPA’s *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use* (EPA 2009).

Level III: This level refers to standard EPA-approved methods that may be equivalent to Level IV methods (see below), with the exception that the level of documentation supplied with analytical results is frequently less robust.

- **Generally associated verification/validation stage:** Level III may be associated, depending on data user requirements, with “Stage 2A” or “Stage 2B” verification and validation checks as described in Appendix A, Sections 1.2 and 1.3, respectively, of EPA’s *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use* (EPA 2009).

Level IV: This refers to EPA Contract Lab Program (CLP) Routine Analytical Services (RAS) analyses, or EPA approved methods (Level III), with the exception that additional rigorous QA/QC protocols are employed and full documentation is provided by the laboratory to the project. Documentation allows validation of results against specific contractual requirements and allows for detailed data use, restriction, and/or limitations to be identified prior to use of data. Requirements or limitations for a Level IV analysis and full validation of the analytical data, if necessary, are specified below.

- **Generally associated verification/validation stage:** Level IV may be associated, depending on data user requirements, with “Stage 4” verification and validation checks as described in Appendix A, Section 1.5, of EPA’s *Guidance for labeling Externally Validated Laboratory Analytical Data for Superfund Use* (EPA 2009).

Level V: This refers to nonstandard methods that are considered to be more rigorous than Level IV methods. This analytical data level is very seldom used and must be accompanied by significant evidence substantiating the validity of the nonstandard methods employed. Level V is generally used when extremely accurate/precise measurements and quality documentation, far

beyond standard EPA methods, are deemed necessary for site-specific contaminant identifications and quantitation.

- **Generally associated verification/validation stage:** Level V may be associated, at a minimum, with the “Stage 4” verification and validation checks as described in Appendix A, Section 1.5, of EPA’s *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use* (EPA 2009).

Most audit questions are simple ‘yes/no’ compliance questions. Some questions have an ‘effectiveness’ rating, where the auditor estimates the effect of any defects. These are both field-level screening measurements. There will be no laboratory analysis.

The audit data will be at data quality Level I.

7.1 Data Accuracy, Precision, and Measurement Range

Accuracy is a measure of the agreement between a “true” or reference value and the associated measured value. Accuracy will be ensured by careful creation of the audit forms, such that they address every applicable forest practices act rules. Furthermore, each audit will be conducted with at least two auditors, who shall agree on each decision, or document their disagreement. Lastly, the QAO will accompany the audit team on at least one site visit to ensure its thoroughness.

Precision is a measure of agreement between two measurements of the same property under prescribed conditions. Precision will be measured by a duplicate audit of at least one timber sale. On a separate audit form, the QAO will conduct a contemporaneous audit. The data will be compared with the official audit team’s report. For compliance, each ‘yes/no’ question will be compared with the QAO report. **The goal for compliance precision is 90%.**

Appropriate **measurement range** is determined by careful design of the audit forms. Most questions are rated ‘yes’, ‘no’ or ‘not applicable’.

7.2 Data Representativeness

Representativeness is the degree to which the audit data accurately and precisely represent general timber sale conditions. This will be achieved by spreading the audit sites across all four ownership categories. If possible, at least one site should come from each IDL supervisory area, and one site should come from each geographic area (north, southwest, east). Within these strata, timber sale selection will be random. Sales may be excluded from the audit panel based on accessibility concerns.

7.3 Data Comparability

Comparability is the confidence with which one data set can be compared to another data set. Forest practices act audits have been occurring every four years since 1988. Except where there are new rules, every effort is made to keep the process similar to past years. This is achieved by

working closely with the staff who conducted the audits and ensuring that the audit questions closely follow the text of the rules.

7.4 Data Completeness

Completeness is the percentage of valid data relative to the total possible data points. For data to be considered valid, it must meet all of the acceptance criteria, including accuracy and precision, and any other criteria specified by the analytical method used. The overall data quality objective for completeness for the sampling events conducted under this QAPP is 50%, with a goal of 80% (i.e. 20 and 36 audits, respectively). If the sampling does not meet the 50% quality assurance objective the data will be discussed with the program manager and a course of action agreed upon. Any departure from this objective will be justified and explained in the project records in accordance with the QMP.

8 Special Training/Certification

All specialized or nonroutine training, qualifications, or certifications necessary for project and/or laboratory staff is listed below.

The project manager is responsible for ensuring that personnel assigned to this project are appropriately trained and qualified, with the appropriate training records on file with DEQ human resources.

All work performed by DEQ personnel will be conducted in accordance with the *Idaho General Safety and Health Standards* (Division of Building Safety 2006).

Training for audit staff will consist of:

1. Required reading of entire FPA rules booklet.
2. Instruction in use of audit field forms.
3. Visit to a mock audit site in advance of field season.

9 Documentation and Records

Project documents will be filed electronically in TRIM in accordance with applicable program filing procedures. The project manager is responsible for ensuring that a copy of the current approved (and signed) project QAPP, with related FSPs and standard operating procedures (SOPs), is available in the DEQ TRIM electronic records management system. A copy of the signed signature page for the project QAPP and FSP (if used) is to be filed in the TRIM system by the project manager. Preferably, the approved document, including the signed signature page, is attached to the TRIM record in PDF format.

Field personnel shall use handheld computers to record the site observations. A Microsoft Access database will be developed to record and document audit findings. This database will be backed up after each field day, and returned to TRIM at the end of the field season. The

questions found in the database are listed in Appendix B, although the precise data-entry format will depend on the final construction of the database.

Audit data will be recorded immediately upon field observation. Comments and notes may be added at any time during the same day the audit was conducted. Any substantive changes to the audit form after the day of the audit will be highlighted, dated and initialed.

If the field computers become inoperative, then paper audit forms, using the questions in appendix B, will be used. The data will be transferred to the database as soon as practical. If data transfer does not occur within one week, the forms shall be uploaded to TRIM. Otherwise, the paper forms may be discarded.

Photographs, if any, shall be given file names in the following format: “Name of timber sale_[Photograph number starting from 1]”. Photographs will be kept with the audit data, either in TRIM or on a backed-up DEQ network drive.

In addition to the audit notes (as identified in Appendix B), other major project documentation shall be filed in TRIM. This includes the list of potential sites and final audit report.

Quality assurance information, including the QAO’s report and duplicate audit comparison shall be entered into TRIM. The final data documentation, per the DEQ QMP, shall be entered into the TRIM system by the project QAO and/or the project manager, as applicable.

All project documentation and records shall be retained in the TRIM system in accordance with the current approved DEQ records retention schedule (TRIM record #2010AIC3).

10 Sampling Process Design

This section describes the project data collection activities, assumptions, sampling site selection, general descriptions of the number of samples to be taken, the number of sampling locations, if samples are to be individually handled or composited, and any other relevant project-specific information.

10.1 Rationale for Selection of Sampling Sites

The audit sites (approximately 40) will be chosen from a panel of every timber sale in Idaho that meets the following criteria:

1. Exceeds 5 acres of total disturbed area.
2. Has cutting units that contain or border at least 500 feet of Class I (fish-bearing) stream.
3. Forest practice activities must have occurred since January 2014.

The panel of sites is developed by contacting the US Forest Service, Bureau of Land Management, and Idaho Department of Lands. IDL has a complete list of timber sales conducted on private and state land.

Each site is identified by a unique timber sale name/number, and at least its IDL supervisory area and region of the state (north, southwest, or east). At least one site should fall in each supervisory area and in each geographic area category. Once this objective is met, sites are randomly selected. Sites may be rejected based on accessibility and logistical considerations.

DEQ is responsible for selecting the audit sites.

Once the site list has been developed, DEQ and IDL will work with the land manager to arrange a convenient site visit date.

10.2 Sample Design Logistics

Sampling logistics consist of a calendar of field visits. This will be developed in April 2016, with consideration for weather, travel and employee availability. The calendar will be publically available and published on the DEQ website by June 1, 2016. Aside from factors of accessibility and convenience, the precise order of sites is not important.

11 Sampling Methods

An audit shall consist of field observation of a timber sale, usually after the harvesting is complete. The audit team, consisting of one DEQ and one IDL staff person, shall observe the entire substantive area of the timber sale. The team should attempt to walk every road and skid trail, and inspect every culvert. The team must visit every Class I stream crossing.

At each location where a rule is applicable, the audit team will decide whether the rule has been complied with. The team will discuss each situation, and attempt to be unanimous in their opinion. Disagreements will be noted on the field form. If disagreements are not resolved, the DEQ staff member's opinion will be used in the final audit report, but the dissenting opinion will be noted and elaborated.

Gradient will be measured using a professional-grade clinometer, such as the Suunto PM-5.

Distance will be measured using a measuring tape or laser rangefinder. Distance measurements may be approximated by pacing or visually estimating.

Personal protective equipment (PPE) necessary to perform the field work for this project shall be consistent with the requirements of the *Idaho General Safety and Health Standards* (Division of Building Safety 2006) and all project-specific health and safety plans associated with the project.

In addition to these PPE requirements, the following specific PPE is required for field work associated with this project:

- Sturdy footwear
- Hard hat and high-visibility vest for active timber sales
- First aid kit, to be kept in the vehicle

Fieldwork quality will be controlled by following the audit form during each sampling event, and using consistent guidance for evaluating each question.

12 Sample Handling and Custody

No samples are to be collected for this project.

Audit data will be backed up at the end of each field day.

13 Analytical Methods

No samples are to be analyzed for this project.

14 Quality Control

Generally speaking, quality control is a means of measuring or estimating the potential variability involved with sample collection, analysis, or measurement activities in the field and in the laboratory. This section will discuss the various QC activities associated with this project.

14.1 Field QC Checks

Field QC will consist of two events, which may occur concurrently:

1. The QAO will oversee at least one audit to ensure that the audit crew is evaluating every applicable forest rule. Any departures from the protocol will be investigated and discussed. The QAO will prepare a report that details his or her observations and the implications thereof.
2. The QAO will conduct a duplicate audit of one site. This audit form will not be shared with the audit crew until the site is complete. The QAO should informally debrief the audit team immediately following the audit, and note any areas of concern. The QAO will prepare a formal report that compares both audits, and shall calculate the overall precision, as detailed in section 7.1.

14.2 Laboratory Quality Control Checks

No samples are to be collected or analyzed for this project.

14.3 Data Analysis Quality Control Checks

The QC check data may be checked/reviewed for quality by the project manager or the project QAO at any time during the project and must be checked after all of the data are collected. Corrective actions, as needed, will be documented in the event that control limits are exceeded. Data qualifiers will be assigned following appropriate data verification/validation procedures. Any qualifiers added will be defined in the project summary/technical report and will be consistent with EPA QA/G-8 (EPA 2002b).

15 Instrument/Equipment Testing, Inspection, and Maintenance

Field instruments shall be operated and maintained in accordance with the individual instrument/equipment manual.

16 Instrument/Equipment Calibration and Frequency

Calibration of the laser rangefinder and clinometer shall occur before audits begin, and at least once per month thereafter.

The laser rangefinder shall be calibrated against a known length of at least 50 meters.

The clinometer shall be calibrated against a known right angle.

Each instrument will be visually inspected by field sampling personnel for damage and operability prior to each sampling event.

17 Inspection/Acceptance of Supplies and Consumables

No supplies or consumables are required for this project.

18 Nondirect Measurements and Data Acquisition

No nondirect data are expected to be acquired or used by this project.

19 Data Management

An electronic copy of the audit report database will be kept in TRIM and updated at least once every two weeks during field season. The database will be backed up at the end of each field day.

If paper forms are used, the data will be transferred to the database as soon as possible. If data transfer does not occur within one week, the paper form shall be kept and filed in TRIM; otherwise the paper copy may be discarded.

After review by the QAO and project manager, the final report will be published on the DEQ website and released to the Forest Practices Act Advisory Committee.

20 Assessment and Response Actions

Assessment of the project QAPP will be performed by reviewing field notes and audit reports and by conducting at least one field audit. This assessment will be completed or directed by the QAO. Any errors or inconsistencies identified in the field notes will be investigated and

corrected to ensure the integrity of the data and conformance to the QAPP. The QAO will perform assessment of the project independently of the project manager.

A note to the file will be included with the field notes if any follow-up QA activities regarding field notes are required and conducted.

Audits and reports shall utilize the appropriate checklist forms located in Appendix A and will be documented in TRIM, indicating the date of the audit and listing identified issues or concerns in accordance with the QMP. If the project QAPP requires revision as a result of this audit or review, these actions will be taken and the revised QAPP submitted for approval prior to implementation, per the DEQ QMP (DEQ 2012a).

21 Reports to Management

Project and sample results for the 2016 forest practices audits will be presented in a project-specific report. This report will be provided to the program manager, and also to the Idaho Forest Practices Act Advisory Council.

22 Data Review, Verification, and Validation

Data review is conducted (ideally by the project manager or project technical staff) to ensure that project data have been recorded, transmitted, and processed correctly. Data review is normally performed by the unit/staff generating the data.

Data verification is generally conducted (ideally by the project manager or project technical staff) following data review and is performed to evaluate the completeness, correctness, conformance, and compliance of the data against the QAPP-specified method, procedural, or contractual requirements. The purpose of data verification is to evaluate the extent to which the sample collection requirements, analytical processes prescribed in the QAPP, and specified project procedures were followed. Data verification essentially evaluates the actual project performance against the requirements established in the QAPP. The output from this process is considered and evaluated during the reconciliation with user requirements (assessment) phase. Data verification is normally performed by the unit/staff generating the data.

Data validation shall be conducted by the project QAO or a subject matter expert not otherwise assigned to the project or unit generating data. This process shall follow data review and verification and is an analyte- and sample-specific process that extends the data evaluation beyond method, procedure, or contractual compliance to determine the quality of a specific data set relative to the end use. This effort should focus on the project-specific data needs and note any potentially unacceptable departures from the QAPP. The output from this process is considered and evaluated during the reconciliation with user requirements (assessment) phase. Data validation is generally performed by an independent entity not closely associated with the unit generating the data.

Data review, verification, and validation tasks are assigned to specific project staff, such as the project manager or project QAO, in section 23 of the project QAPP.

The level of documentation required for a specific project data review, verification, validation, and reconciliation effort is specified below. This level of documentation is determined by the project manager, in consultation with the regional or program manager, consistent with the “graded approach” used by DEQ in implementing the quality management system (QMS).

Those assigned to perform project data review, verification, and validation *shall use the associated checklist provided in the appendices to perform and document* the effort in the associated project TRIM file system.

23 Review, Verification, and Validation Methods

Data review, verification, and validation efforts are based on the analytical support determined to be necessary in the planning stages of the project. DEQ personnel performing data verification and validation are encouraged to review the following guidance documents:

- EPA QA/G-8 (EPA 2002b) for guidance on methods for this task.
- Appendix A of EPA’s *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use* (EPA 2009)
- *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (EPA 2004).
- *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (EPA 2008).

Data review for data and information collected under this QAPP shall be performed by the project manager using the data review checklist found in Appendix A. Data review will include the following activities, at a minimum:

- An examination of project data, identifying errors in data entry, storage, calculation, reduction, transformation, or transcription.
- An examination to ensure all required site information is documented and available, in preparation for the verification, validation, and assessment process.
- An examination to identify if all required nondirect measurement data (existing data) information *and supporting documentation*, as required by the project QAPP, have been received and are available for the verification and validation process.
- A completeness check to determine if any data deficiencies exist, such as missing data or compromised data integrity, due to issues such as loss in acquisition, storage, or processing.
- An examination to identify programming and/or software related errors, if applicable to the project.

Data verification for data and information collected under this QAPP shall be performed by the project manager using the data verification checklist found in Appendix A. The general focus of the process is to identify if all requirements specified in the project QAPP, associated procedures, and project contractual requirements (if applicable), have been met, and if not, to determine the extent to which requirements failed to be achieved. Data verification will include the following activities, at a minimum:

- Verification that all data completeness criteria, as stated in the project QAPP, have been satisfied. This shall include items such as the number of samples.
- Verification that the values of individual data points, and/or comparison calculations such as RPD, meet the criteria specified in the QAPP.
- Verification that all supporting information and documentation for nondirect measurement data (existing data) meet the requirements of the QAPP. If not, identify any limitations or restriction on the use of such data.
- Verification that data and sample collection practices adhered to procedural requirements, to include a review of project logs and field notes, as applicable.
- Verification that data calculation and handling activities conform to QAPP requirements. Examples include correct use of mathematical formulas and numerical methods, correct use of programs and programing, and correct application of database information transfers.
- Verification that any remaining or unique project QAPP or procedural requirements have been met, and if not, determine the extent to which these requirements failed to be achieved.
- Determine and document any limitations on the use of the project data.

Data validation for data and information collected under this QAPP shall be performed by the project QAO using the data validation checklist found in Appendix A. The general focus of the process is to identify if the quality of the project data meets the needs of the data user and the associated decision makers. The data validation effort for this project shall include a minimum of 10% of all project data with a goal of 20%, except as noted specifically below. Data validation will include the following activities, at a minimum:

- An evaluation and examination of all (100%) of obtained field QC sample results, followed by assignment (if necessary) of appropriate data qualifiers to these data based on project criteria.
- A review of the outcome of the data verification effort to evaluate the impact on data quality with respect to the DQOs.
- A determination, when necessary and where possible, of the reasons for any failure to meet methodological, procedural, or contractual requirements and an evaluation of the impact of such failure on the overall data.
- A comparison of the project DQOs, as defined in the project QAPP, to the data obtained by the project to assess the adequacy of the data (new or existing) in relation to their intended use.
- A determination of the extent to which any nondirect measurement data (existing data), and the accompanying supporting information and documentation, meet the requirements of the data user. Specifically, does the quality of the existing data adequately support the needs of the project and support the intended use of the data for the project?
- Determine and document any limitations on the use of the project data.
- Determine the adequacy of the data to proceed on to the data assessment and reconciliation with user requirements phase.

Any potentially unacceptable departures from the requirements of the project QAPP will be noted during the data review, verification, and validation process. If the project manager or the project QAO determines the data do not meet the needs of the project or the DQOs of the QAPP

and/or if the conclusions drawn from the data do not appear to be reasonable, the project manager and the QAO shall immediately report such findings to the program manager to determine the necessary corrective actions. Documentation of such findings and activities shall be maintained in accordance with the DEQ QMP.

24 Reconciliation with User Requirements

Data quality assessment (DQA) will be performed in accordance with this QAPP and the DEQ QMP (DEQ 2012a). Additional guidance for conducting data assessment can be found in EPA QA/G-9R or EPA QA/G-9S (EPA 2006a, b).

The DQA will be performed (at a minimum) by the project manager and the project QAO to determine if the project data set is of the right type, quality, and quantity to achieve the objectives of the project and can confidently be used to make an informed decision.

Information and findings associated with the project data review, verification, and validation efforts shall be considered during the data assessment process.

When DQOs are not met, the project manager will discuss appropriate corrective actions with project staff and project managers. Corrective actions may be initiated to suggest improvements to data collection activities, and data and sample handling techniques.

If the project manager or the QAO decide the project data do not meet the project needs or the QAPP quality objectives and/or if the conclusions drawn from the data do not appear to be reasonable, the project manager and the QAO shall immediately report such findings to the program manager to determine and document the necessary corrective actions.

If sampling activities require revision, the project QAPP will be revised as necessary. Following revision, and prior to implementation, the revised project QAPP must be re-approved in accordance with the DEQ QMP (DEQ 2012a).

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25 References

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- EPA (US Environmental Protection Agency). 2006c. *Guidance on Systematic Planning Using the Data Quality Objectives Process* (EPA QA/G-4). Washington, DC: EPA, Office of Environmental Information. EPA/240/B-06/001. Available at <http://www.epa.gov/quality/qs-docs/g4-final.pdf>.

EPA (US Environmental Protection Agency). 2008. *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (OSWER 9240.1-48). Washington DC: EPA, Office of Superfund Remediation and Technology Innovation. EPA 540-R-08-01. Available at <http://www.epa.gov/superfund/programs/clp/download/somnfg.pdf>.

EPA (US Environmental Protection Agency). 2009. *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use* (OSWER No. 9200.1-85). Washington, DC: EPA, Office of Solid Waste and Emergency Response. EPA 540-R-08-005. Available at <http://www.epa.gov/superfund/policy/pdfs/EPA-540-R-08-005.pdf>.

Appendix A. Project Checklists

All checklists in this appendix are available for download and use by project staff as standalone electronic documents, from either the DEQ TRIM system or the DEQ Quality System website: <http://insidedeq.deq-intra/director/quality.htm>.

Prior to using an activity checklist, project staff should review the applicable requirements listed in the project QAPP and the QMP.

The following checklists are included in this appendix:

- Data Review—TRIM record #2012AEB2
- Data Verification—TRIM record #2012AEB3
- Data Validation—TRIM record #2012AEB4
- Project QAO Annual Audit—TRIM record #2012AEB5

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DEQ QAPP/FSP Checklist—Data Review

The individual assigned in the project QAPP/FSP to perform project **data review** *shall complete and file this checklist in the appropriate project TRIM system files*. Project personnel are encouraged to expand this standard list, as project conditions warrant.

 Printed Name of Staff Performing Data Review _____
 Date Completed

 Project QAPP/FSP Title _____
 QAPP/FSP TRIM Record #

Check the following review boxes following completion of each listed task.

Check *yes* if the task was completed without any noted discrepancies. Otherwise, check *no* and include a description of the discrepancy in the space provided. Use additional sheets as necessary.

Yes No

- Verify that the approved current project QAPP, including a copy of the signed approval signature page, is currently filed in the TRIM system. Also, verify the project information has been entered into the QAO project tracker found at TRIM record #2012AEB8. If the QAPP is not filed in TRIM, or the QAO tracker is not current, immediately inform the DEQ QA manager.

- If the project utilizes an FSP, verify that the approved project FSP, including a copy of the signed approval signature page, is currently filed in the TRIM system. Also, verify the project information has been entered into the QAO project tracker found at TRIM record #2012AEB8. If the FSP is not filed in TRIM, or the QAO tracker is not current, immediately inform the DEQ QA manager.

- Examination and review the project QAPP (and FSP, if used) to determine if additional project-specific data *review* requirements apply. Update this checklist to include all such items.

- Examine project data, identifying errors in data entry, storage, calculation, reduction, transformation, or transcription.

Yes No

Ensure all required sample information is documented and available, in preparation for the verification, validation, and assessment process. This includes pertinent project information concerning blanks, matrixes, temperature requirements, duplicates, preservatives, shipping dates, holding times, chain-of-custody records, etc.

Identify if all required nondirect measurement data (existing data) information *and supporting documentation*, as required by the project QAPP (and FSP, if used), have been received and are available for the verification and validation process.

Determine if any data deficiencies exist, such as missing data or compromised data integrity, due to issues such as loss in acquisition, storage, or processing.

Ensure all necessary analytical laboratory support documentation, as set forth and stipulated in the project QAPP (and FSP, if used), have been received from the applicable laboratories.

Identify programming and/or software related errors, if applicable to the project.

Ensure that all deficiencies and/or conditions adverse to quality determined during the project data *review* process have been communicated to project management and are listed on this checklist or attached for inclusion in the TRIM record system.

Verify that a copy of this data review checklist has been provided to the project manager for deficiency resolution and placed in the project TRIM file system. Note that additional data review actions may be required based on the checklist findings, such as a corrective action plan/reports, etc. The project manager shall consult the DEQ QMP and proceed accordingly.

Please list any additional comments below. Attach additional sheets as necessary.

DEQ QAPP/FSP Checklist—Data Verification

The individual assigned in the project QAPP/FSP to perform project **data verification** *shall complete and file this checklist in the appropriate project TRIM system files*. Project personnel are encouraged to expand this standard list, as project conditions warrant.

 Printed Name of Staff Performing Data Verification

 Date Completed

 Project QAPP/FSP Title

 QAPP/FSP TRIM Record #

Check the following review boxes following completion of each listed task.

Check *yes* if the task was completed without any noted discrepancies. Otherwise, check *no* and include a description of the discrepancy in the space provided. Use additional sheets as necessary.

Yes No

- Examine and review the project QAPP (and FSP, if used) to determine if additional project specific data *verification* requirements apply. Update this checklist to include all such items.

- Verify that all data completeness criteria, as stated in the project QAPP (and FSP, if used), have been satisfied. This shall include items such as the number of samples, number of QC samples such as spikes and duplicates, and chain-of-custody record continuity.

- Verify that the values of individual data points, and/or comparison calculations such as RPD, meet the criteria specified in the QAPP (and FSP, if used).

- Verify that the required analytical methods, as listed in the project QAPP (and FSP, if used) correspond to the analytical methods employed by the laboratory, as recorded in laboratory reports.

- Verify that QAPP (and FSP, if used) requirements relative to laboratory analytical support documentation have been satisfied by the reporting laboratory, including the correct application of data qualifiers.

- Verify that all supporting information and documentation for nondirect measurement data (existing data) meet the requirements of the QAPP (and FSP, if used). If not, identify any limitations or restriction on the use of such data.

Yes No

Verify that data and sample collection practices adhered to procedural requirements, to include a review of project logs and field notes, as applicable.

Verify that sample handling activities conform to QAPP (and FSP, if used) requirements. Examples include sample shipment timelines, sample holding times, preservatives, number of samples obtained, duplicate or split sample frequency, and chain-of-custody documentation.

Verify that data calculation and handling activities conform to QAPP (and FSP, if used) requirements. Examples include correct use of mathematical formulas and numerical methods, correct use of programs and programing, and correct application of database information transfers.

Verify that any remaining or unique project QAPP (and FSP, if used) or procedural requirements have been met, and if not, determine the extent to which these requirements failed to be achieved.

Determine and document any limitations on the use of the project data.

Ensure that all deficiencies and/or conditions adverse to quality determined during the project data *verification* process have been communicated to project management and are listed on this checklist or attached for inclusion in the TRIM record system.

Verify that a copy of this data verification checklist has been provided to the project manager for deficiency resolution and placed in the project TRIM file system. Note that additional data verification actions may be required based on the checklist findings, such as a corrective action plan/reports, etc. The project QAO shall consult the DEQ QMP and proceed accordingly.

Please list any additional comments below. Attach additional sheets as necessary.

DEQ QAPP/FSP Checklist—Data Validation

The individual assigned in the project QAPP/FSP to perform project **data validation** shall complete and file this checklist in the appropriate project TRIM system files. Project personnel are encouraged to expand this standard list as project conditions warrant.

Printed Name of Staff Performing Data Validation

Date Completed

Project QAPP/FSP Title

QAPP/FSP TRIM Record #

Check the following review boxes following completion of each listed task.

Check *yes* if the task was completed without any noted discrepancies. Otherwise, check *no* and include a description of the discrepancy in the space provided. Use additional sheets as necessary.

Yes No

- Verify that the approved current project QAPP, including a copy of the signed approval signature page, is currently filed in the TRIM system. Also, verify the project information has been entered into the QAO project tracker found at TRIM record #2012AEB8. If the QAPP is not filed in TRIM, or the QAO tracker is not current, immediately inform the DEQ QA manager.

- If the project utilizes a FSP, verify that the approved project FSP, including a copy of the signed approval signature page, is currently filed in the TRIM system. Also, verify the project information has been entered into the QAO project tracker found at TRIM record #2012AEB8. If the FSP is not filed in TRIM, or the QAO tracker is not current, immediately inform the DEQ QA manager.

- Examine and review the project QAPP (and FSP, if used) to determine if additional project-specific data *validation* requirements apply. Update this checklist to include all such items.

- Evaluate and examine all (100%) of obtained field QC sample results, such as duplicates and trip blanks, etc., followed by assignment (if necessary) of appropriate data qualifiers to these data based on project criteria.

- Review project analytical laboratory reports and data, including the assigned data qualifiers, to evaluate the data quality with respect to the project DQOs. Assign data qualifiers to individual data values as necessary and appropriate.

Yes No

- Review the outcome of the data verification effort to evaluate the impact on data quality with respect to the DQOs.

- Determine, when necessary and where possible, the reasons for any failure to meet methodological, procedural, or contractual requirements and evaluate the impact of such failure on the overall data.

- Compare the project DQOs, as defined in the project QAPP (and FSP, if used), to the data obtained by the project to assess the adequacy of the data (new or existing) in relation to their intended use.

- Determine the extent to which any nondirect measurement data (existing data), and the accompanying supporting information and documentation, meet the requirements of the data user. Specifically, does the quality of the existing data adequately support the needs of the project and support the intended use of the data for the project?

- Determine and document any limitations on the use of the project data.

- Determine the adequacy of the data to proceed on to the data assessment and reconciliation with user requirements phase.

- Ensure that all deficiencies and/or conditions adverse to quality determined during the project data *validation* process have been communicated to project management and are listed on this checklist or attached for inclusion in the TRIM record system.

- Verify that a copy of this data validation checklist has been provided to the project manager for deficiency resolution and placed in the project TRIM file system. Note that additional data validation actions may be required based on the checklist findings, such as a corrective action plan/reports, etc. The project QAO shall consult the DEQ QMP and proceed accordingly.

Please list any additional comments below. Attach additional sheets as necessary.

Appendix B. Audit Form

Site	Admin	Roads	Yarding	Streams	Stocking	Chemicals	General	Summary
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Sale Name Audit Date

County Ownership

FPA Region Forest Type

Yarding Silvicultural

Felling Activities

Notification Number Harvest In-Progress?

Notification Date

Volume (mmbf)

Owner

Operator

Forester

Inspector

Auditors

Others Present

Site Notes

Site	Admin	Roads	Yarding	Streams	Stocking	Chemicals	General	Summary
------	-------	-------	---------	---------	----------	-----------	---------	---------

N/A Yes No

Variations

<input type="checkbox"/> Variance request made in writing? (020 01ai)	<input type="checkbox"/> Variance request evaluated by IDL? (020 01aia)
<input type="checkbox"/> Variance provides equal protection? (020 01aia)	<input type="checkbox"/> Lake site-specific plan for SPZ activities? (030 07a)
	<input type="checkbox"/> Site-specific BMPs followed, if required? (031 04)

Details of variance, if granted

Roads

<input type="checkbox"/> Plan minimizes road width? (040 02b)	<input type="checkbox"/> Plan aligns road with natural terrain features? (040 02b)
<input type="checkbox"/> Plan drains roads naturally where possible? (040 02c)	<input type="checkbox"/> Plan includes culverts and ditches to protect roads? (040 02d)
<input type="checkbox"/> Plan avoids road reconstruction in SPZ? (040 02h)	<input type="checkbox"/> Plan avoids road construction in SPZ? (040 02a)
<input type="checkbox"/> Plan leaves vegetation between roads and streams? (040 02a)	<input type="checkbox"/> Plan disposes of road material in stable location? (040 02b)
<input type="checkbox"/> Were earthwork and hauling suspended during rain? (040 03h)	<input type="checkbox"/> Was hauling minimized during wet periods? (040 04civ)

Crossings

<input type="checkbox"/> Plan minimizes number of stream crossings? (040 02g)	<input type="checkbox"/> If bridges >75' long, IDWR permit obtained? (020 01b)
<input type="checkbox"/> If bridges encroach on stream, IDWR permit obtained? (020 01b)	<input type="checkbox"/> If culverts >60' in class II, IDWR permit obtained? (020 01b)
<input type="checkbox"/> If culverts >85" dia, IDWR permit obtained? (020 01b)	<input type="checkbox"/> If fords >75' long or >25' wide, IDWR permit obtained? (020 01b)
<input type="checkbox"/> Are all planned culverts >12" in diameter? (040 02eiii)	<input type="checkbox"/> Are planned culverts appropriately sized? (040 02eii)
<input type="checkbox"/> Do planned culverts provide fish passage? (040 02ei)	<input type="checkbox"/> Do planned culverts minimize discharge of sediment? (040 02d)
<input type="checkbox"/> Plan has fords crossing stream at right angles? (040 02g)	<input type="checkbox"/> Plan avoids fords in areas with gradient >4%? (040 02g)
<input type="checkbox"/> Plan has fords cross-drained and rocked for 75'? (040 02g)	<input type="checkbox"/> Plan avoids fords harming salmonid spawning? (040 02g)

Administrative Notes

Site	Admin	Roads	Yarding	Streams	Stocking	Chemicals	General	Summary
------	-------	-------	---------	---------	----------	-----------	---------	---------

N/A Yes No

Construction

<input type="checkbox"/> Were roads constructed according to plans? (040 03a)	<input type="checkbox"/> Has road fill material been properly compacted? (040 03d)
<input type="checkbox"/> Was embankment erosion minimized? (040 03g)	<input type="checkbox"/> Has outslope drainage been retained and berms removed? (040 03e)
<input type="checkbox"/> Have erosion sources been repaired? (040 04b)	<input type="checkbox"/> Are roads on slopes >60% full benched (or variance)? (040 03j)
<input type="checkbox"/> Have exposed erodible materials been stabilized? (040 03c)	<input type="checkbox"/> Were cut-slopes reconstructed to minimize sloughing? (040 03i)
<input type="checkbox"/> Has bare earth been stabilized? (040 04gvi)	<input type="checkbox"/> Were embankments built without wood or excessive ice? (040 03d)
<input type="checkbox"/> Is debris placed to avoid stream entry? (040 04a)	

Drainage

<input type="checkbox"/> Are quarries properly drained? (040 03f)	<input type="checkbox"/> Is road drainage adequate with no unnecessary berms? (040 04cii)
<input type="checkbox"/> Has adequate drainage been installed for winter use? (040 05a)	<input type="checkbox"/> Were relief culverts with gradient <1% installed? (040 03g)
<input type="checkbox"/> Are culverts and ditches functional? (040 04ci)	<input type="checkbox"/> Is road surface adequately maintained? (040 04ciii)
<input type="checkbox"/> Are all surfaces and drainage structures maintained? (040 04ei)	<input type="checkbox"/> Has ditch-line erosion been controlled? (040 04gv)
<input type="checkbox"/> Was surface drainage maintained during thaws? (040 05b)	<input type="checkbox"/> Were surface-stabilizing materials kept out of streams? (040 04cv)

Inactive and Abandoned Roads

<input type="checkbox"/> Are inactive roads controlling erosion? (040 04fi)	<input type="checkbox"/> Have inactive roads been blocked to vehicular traffic? (040 04fii)
<input type="checkbox"/> Are inactive bridges and culverts maintained? (040 04fiii)	<input type="checkbox"/> Are abandoned drainage structures removed? (040 04gi)
<input type="checkbox"/> Are abandoned crossings restored to original gradient? (040 04gi)	<input type="checkbox"/> Are abandoned road prisms uncompacted? (040 04gii)
<input type="checkbox"/> Are abandoned fill slopes have long-term stability? (040 04giii)	<input type="checkbox"/> Are abandoned sidehill fills stable? (040 04giv)

Road Notes

Site	Admin	Roads	Yarding	Streams	Stocking	Chemicals	General	Summary
------	-------	-------	----------------	---------	----------	-----------	---------	---------

N/A Yes No

Trails

<input type="checkbox"/> Skid trails kept to minimum width and number (030 03c)	<input type="checkbox"/> Were skidding tractor sizes appropriate? (030 03c)
<input type="checkbox"/> Skid trail gradients <30% on unstable soils? (030 03b)	<input type="checkbox"/> Did log skidding avoid causing rutting or erosion? (030 03a)
<input type="checkbox"/> Was erosion minimized during downhill yarding? (030 03d)	<input type="checkbox"/> Landings and skid trails located in stable areas outside of SPZ? (030 04a)
<input type="checkbox"/> Are trail drainage and stabilization adequate and current? (030 05a)	

Landings

<input type="checkbox"/> Size of landings minimized? (030 04b)	<input type="checkbox"/> Sidecasted landings properly stabilized? (030 04c)
<input type="checkbox"/> Landings and trails located to minimize sidecasting? (030 04a)	<input type="checkbox"/> Landing drainage and stabilization adequate? (030 05b)
<input type="checkbox"/> No loose stumps nor excessive slash in landing filler? (030 04c)	

Yarding Notes

Site	Admin	Roads	Yarding	Streams	Stocking	Chemicals	General	Summary
------	-------	-------	---------	---------	----------	-----------	---------	---------

N/A Yes No

Crossings

<input type="checkbox"/> Stream crossings at right angles? (030 07b)	<input type="checkbox"/> Temporary stream crossings adequate? (030 07b)
<input type="checkbox"/> Ends of stream-crossing skid trails water barred? (030 07b)	<input type="checkbox"/> Temporary stream crossings removed immediately? (030 07b)
<input type="checkbox"/> Water diversions screened appropriately? (020 01ciii)	<input type="checkbox"/> Was stream crossing fill on slopes >60% minimized? (040 03j)

Number of Class I stream-crossing structures

Riparian Disturbance

<input type="checkbox"/> Was riparian management variance followed? (030 07evii)	<input type="checkbox"/> No disturbance on riparian slopes >45% (030 03a)
<input type="checkbox"/> Streamside shrubs, grasses and rocks remaining? (030 07ei)	<input type="checkbox"/> Stream disturbance minimized during cable yarding? (030 07d)
<input type="checkbox"/> Trees felled away from Class I streams? (030 06a)	<input type="checkbox"/> Avoid skidding logs through streams? (030 07b)
<input type="checkbox"/> If banks were armored, IDWR permit obtained? (020 01b)	<input type="checkbox"/> Avoid ground-based equipment use in SPZ? (030 07c)

Slash and Debris

<input type="checkbox"/> Was non-LOD slash moved 5' above OHWM in Class I? (030 07evi)	<input type="checkbox"/> Was non-LOD slash below OHWM removed in Class II? (030 07evi)
<input type="checkbox"/> Non-LOD harvest debris moved 5' above OHWM in Class I? (030 06a)	<input type="checkbox"/> Non-LOD harvest debris moved above OHWM in Class II? (030 06b)
<input type="checkbox"/> Naturally down LOD remaining over Class I stream? (030 07v)	<input type="checkbox"/> Felled trees left as LOD in Class I? (030 07iv)
<input type="checkbox"/> Trail waste deposited only outside of SPZ? (030 06c)	<input type="checkbox"/> Road debris deposited only outside SPZ? (040 03b)
<input type="checkbox"/> Mechanical piling of slash in SPZ avoided? (030 07fii)	<input type="checkbox"/> Were hand piles >5' from OHWM? (030 07fi)

LOD = Live or dead trees and parts or pieces of trees that are large enough or long enough or sufficiently buried in the stream bank or bed to be stable during high flows. Pieces longer than the channel width or longer than twenty feet are considered stable.

Site Admin Roads Yarding Streams **Stocking** Chemicals General Summary

LOD, shade and filtering maintained in SPZ? (030 07iv)

N/A Yes No

Class I Streams

Plot Length (ft) Plot Width (ft)

Forest Type either 75' or 150' (one or both sides above OHWM)

Distance Above OHWM	Tree Diameter Class (DBH in inches)						
	4-8"	8-12"	12-16"	16-20"	20-24"	24-28"	28-32"
0-25'	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
25-50'	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
50-75'	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Shade Option Selected

Distance	Actual RS	Required RS	Required stocking met or exceeded? (030 07eii)	Only one shade option implemented? (030 07eii)
0-25'	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
25-50'	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
50-75'	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Class II Streams or Reforestation

Tree Count (DBH in inches)

< 3"	3 - 11"	> 11"
<input type="text"/>	<input type="text"/>	<input type="text"/>

Plot Length (ft)

Plot Width (ft)

Required stocking >170 North of Salmon River or >125 South of Salmon River

Was stocking adequate within 30' of Class II OHWM? (030 07eiii)

Was stocking adequate across the entire harvested area? (50 04)

Actual Stocking

Are leave-trees of acceptable species and quality? (050 02)

Are leave-trees reasonably distributed? (030 07eiii)

Was replanting-exempt land protected with vegetation? (050 05b)

Stocking and Reforestation Notes

Site	Admin	Roads	Yarding	Streams	Stocking	Chemicals	General	Summary
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N/A Yes No

Storage

Were pesticides stored securely? (060 04b) Are large petroleum containers stored >100' from water? (060 02)

Were pesticides stored safely? (060 04b) Does impervious catchment > 110% storage volume? (060 02)

Were warning notices posted for dangerous pesticides? (060 04b)

Records

Did pesticide applicator have current Idaho license? (060 03) Were the pesticide(s) registered for use in Idaho? (020 01b)

Were the proper records kept for:

Pesticides? (060 10a)	<input type="checkbox"/> Date and time?	Fertilizers or Soil Amendments?
	<input type="checkbox"/> Owner name and address?	
	<input type="checkbox"/> Purpose?	
	<input type="checkbox"/> Contractor or pilot name?	
	<input type="checkbox"/> Project location?	
	<input type="checkbox"/> Hourly air temperature?	
	<input type="checkbox"/> Hourly wind information?	
<input type="checkbox"/> Details and quantities?		

Which chemical(s) were used?

Were chemicals applied in accordance with the label? (060 09a) Were chemicals applied at allowable rates? (060 09b)

Equipment

Was rinsate properly disposed of? (060 05biii) Was an air gap provided during chemical mixing? (060 05ai)

Did fuel transfers avoid risk of spills to water? (060 02a) Were fuel transfers attended at all times? (060 02a)

Did chemical mixing avoid risk of spills to water? (060 05bi) Did equipment washout avoid risk of spills to water? (060 05bi)

Was all petroleum equipment leak-proof? (060 02b) Was all chemical equipment leak-proof? (060 04a)

Was aerial equipment capable of immediate shut-off? (060 06b)

Spills and Misapplications

Were chemical spills immediately reported to IDL? (060 12a) Were petroleum spills immediately reported to IDL? (060 02)

Were spills immediately controlled and contained? (060 12b) Were spills appropriately removed? (060 12c)

Were landings located to avoid spills to water? (060 05bii) Were misapplications immediately reported to IDL? (060 13)

Did aerial applications of pesticide stay > 100' from open water? (060 06a) Did aerial applications of fertilizer stay > 50' from open water? (060 06a)

Did ground applications of pesticide stay > 25' from open water? (060 07a) Did ground applications of fertilizer stay > 10' from open water? (060 07b)

Were hand-applied chemicals used only on specific targets? (060 08a) Were hand-applied chemicals kept out of all water sources? (060 08b)

Chemical Notes

Site	Admin	Roads	Yarding	Streams	Stocking	Chemicals	General	Summary
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General Rules

N/A Yes No

<input type="checkbox"/> 020 01b Idaho Water Quality Standards complied with?	<input type="checkbox"/> 030 08c Did operations avoid wet areas?
<input type="checkbox"/> 030 08a Was cleanup and reseeding prompt in scenic areas?	<input type="checkbox"/> 020 01b Hazardous materials disposed of properly?
<input type="checkbox"/> 030 08b Was critical wildlife habitat preserved?	<input type="checkbox"/> 030 08d Wildlife cover available within 1/4 mile of clearcuts?
<input type="checkbox"/> 020 01b Wastewater disposed of properly?	<input type="checkbox"/> 060 02c Was all non-biodegradable waste properly disposed of?
<input type="checkbox"/> 060 11 Were all chemical containers removed?	<input type="checkbox"/> Were all chemical containers properly disposed of? (060 11)

Method of wastewater disposal

Method of hazardous material disposal

General Notes

Site	Admin	Roads	Yarding	Streams	Stocking	Chemicals	General	Summary
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To what extent were BMPs applied?

Were the BMPs effective?

Did, or could, pollutants enter the water?

What other nonpoint sources are affecting water quality?

Suggested FPA rule changes

Suggested FPA administrative changes