



**Forest
Practices
Board**

Forestry Audit: BC Timber Sales

*Prince George Business Area
Mackenzie District*

FPB/ARC/138

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Board Commentary

This audit examined the activities of the BC Timber Sales Program (BCTS) in the Mackenzie District. Numerous natural resources support a wide range of interests in the district—including recreation, trapping, guide-outfitting, tourism, wildlife and fish—creating challenges for BCTS and timber sale licensees that carry out forestry activities in the area.

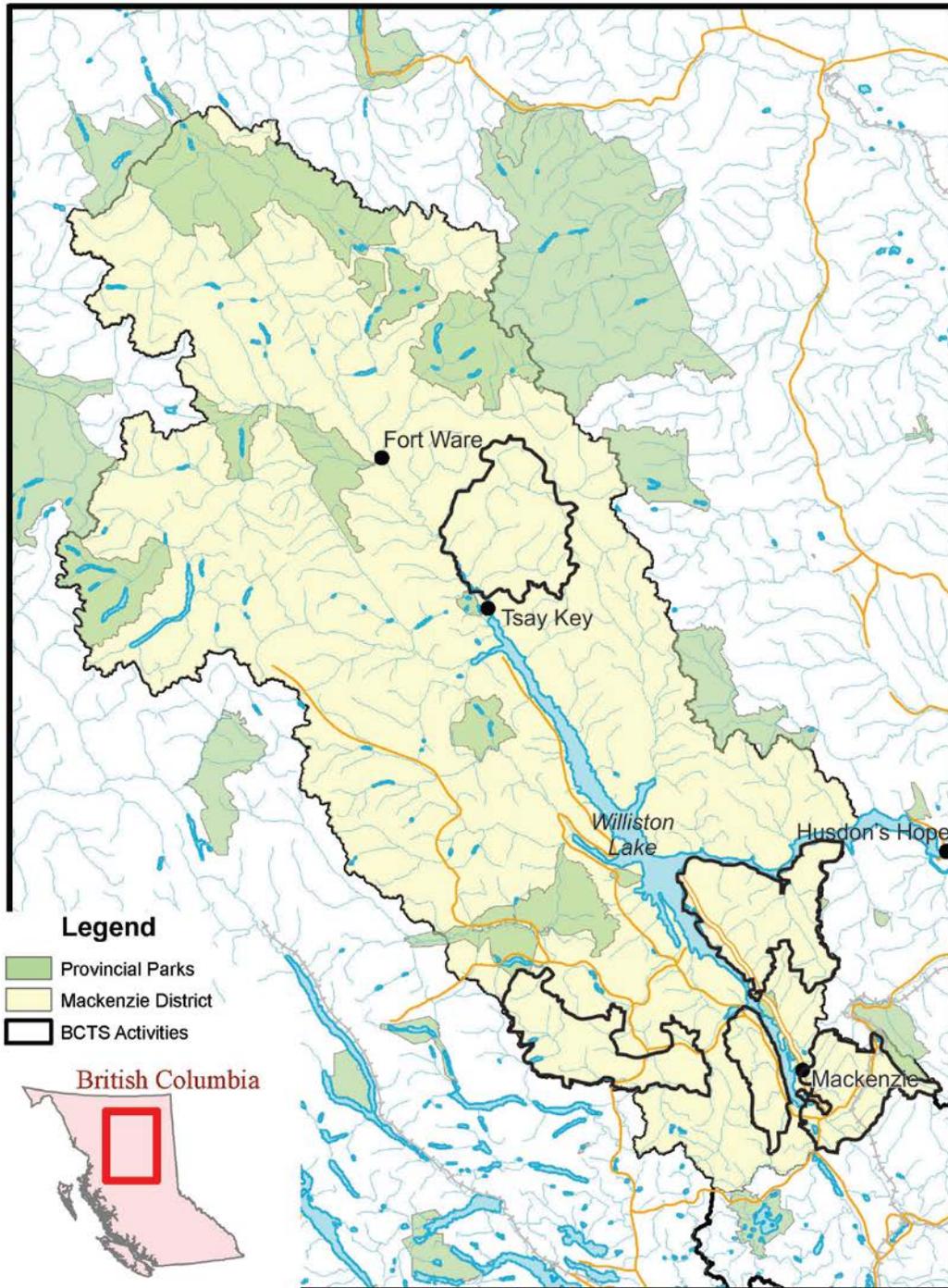
Another challenge faced by licensees there is how to achieve free-growing silviculture milestones in areas prone to rust infection (a fungus that infects hard pines). Rusts can reduce tree growth and cause early mortality in pine stands, impeding the ability to achieve free-growing status. However, on all cutblocks where the risk of rust infection was moderate or high, BCTS achieved free-growing, and it continues to work in collaboration with licensees and the ministry to further enhance knowledge and management of pine rusts.

Overall, the audit found that BCTS and timber sale licensees did a good job at meeting the challenges they faced. However, auditors also found that BCTS did not comply with the *Forest and Range Practices Act* when it constructed one bridge and a short section of road.

When installing a bridge or building a road, natural drainage patterns must be maintained and construction must occur at a time and in a manner that is unlikely to harm fish or fish habitat. BCTS failed to follow these requirements, but once the concern was identified during the audit, BCTS quickly implemented remedial measures. These measures included issuing a stop work order and consulting with an environmental official to assist in the development of a mitigation plan that included the removal of all decks, logs and debris from the stream channel at the bridge site. BCTS also installed additional culverts and sediment traps on the road to restore natural drainage patterns and control sediment.

The Board acknowledges BCTS' quick response to this concern and is satisfied that the remedial measures have successfully mitigated the potential for harm.

Map of the Mackenzie portion of the Prince George Business Area



Audit Results

Background

As part of the Forest Practices Board's 2011 compliance audit program, the BC Timber Sales (BCTS) program and timber sale licence (TSL) holders in the Mackenzie District portion of the Prince George Business Area were selected for audit.

The six million hectare Mackenzie District includes the communities of Mackenzie, Fort Ware, and Tsay Keh, as shown on the map on page two. The predominant geographic feature in the district is the Williston Reservoir, which is the largest lake in British Columbia. Approximately half of the district contains productive forest land with Engelmann spruce, white spruce, sub-alpine fir and lodgepole pine as the major tree species. Numerous natural resources support a wide range of activities in the district, including forest products, recreation, trapping, guide-outfitting, mining, tourism amenities, and a variety of fish and wildlife.

BCTS has been allocated an annual timber harvest volume of 769 000 cubic metres and it auctions Crown timber to registrants in the BCTS program. BCTS prepares operational plans and issues timber sale licences and road permits to successful bidders, who must fulfill licence, permit and operational plan obligations including timber harvesting and road work within cutblocks. Approximately 801 000 cubic metres were harvested by TSL holders during the two-year audit period, with the primary focus on addressing mountain pine beetle infestations.

The Board's audit fieldwork took place from September 26 to 30, 2011.

Objectives Set by Government

The Mackenzie Land and Resource Management Planⁱ (MLRMP) lays out general management direction for values such as water, wildlife, and recreation in the area. It also identifies land use zones and objectives for wildlife and biodiversity which guide the management of resources across the landscape. While not formal legislation, the MLRMP is considered government policy, so BCTS' activities should be consistent with it.

Government objectives set out in the *Land Act*, *Forest and Range Practices Act (FRPA)* and the *Forest Planning and Practices Regulation (FPPR)* also provide strategic guidance to BCTS operations.

BCTS' 2007-2012 forest stewardship plan (FSP)ⁱⁱ provides the link between on-the-ground forestry operations and objectives.



Active timber harvesting east of Mackenzie.

Audit Approach and Scope

The audit examined both BCTS' and timber sale licensees' obligations and activities.

BCTS is responsible for operational planning, including preparing FSPs and site plans, silviculture activities, bridge maintenance and construction and most road construction, maintenance and deactivation outside of cutblocks.

Timber sale licensees are responsible for timber harvesting, fire protection, and most road construction, maintenance and deactivation within cutblocks.

Audited activities were assessed for compliance with FRPA, the *Wildfire Act (WA)* and related regulations. All activities, planning and obligations for the period September 1, 2009, to September 30, 2011, were included in the scope of the audit.

The Board's audit reference manual, *Compliance Audit Reference Manual, Version 6.0, May 2003*, and the addendum to the manual for the 2011 audit season, set out the standards and procedures that were used to carry out this audit. Further details about the audit process appear in Appendix 1.

Planning and Practices Examined

BCTS Responsibilities

Operational Planning

BCTS planned its activities in its 2007-2012 forest stewardship plan (FSP).

The FSP and stand-level plans were examined to ensure that they were consistent with legislated requirements. Stand-level plans were evaluated to ensure that they accurately identified site conditions during harvesting, road and silviculture field sampling.

Road Construction, Maintenance, Deactivation

BCTS constructed 5 kilometres of road and 15 bridges during the audit period. It was also responsible for maintaining 1194 kilometres of forest service road and 142 bridges.

The Board audited all 5 kilometres of road construction, 9 bridges, and the maintenance of 300 kilometres of road and 46 bridges.

Silviculture Obligations and Activities

During the audit period, BCTS manually brushed 11 cutblocks, site prepared 3 cutblocks and planted 51 cutblocks. Free-growing obligations were due or declared on 56 cutblocks and regeneration obligations were due on 108 cutblocks.

The board audited 4 of the brushed cutblocks, 1 site prepared cutblock, 22 planted cutblocks, 41 cutblocks with regeneration obligations due, and 34 cutblocks with free-growing obligations due.

Timber Sale Licensee Responsibilities

Timber Harvesting

Twenty-four timber sale licences were fully or partially harvested during the audit period. The sales included 78 cutblocks totalling 5621 hectares, with all harvesting conducted using ground-

based systems. The Board examined harvest activities on 40 cutblocks, either by ground, air, or both.

Road Construction, Maintenance and Deactivation

Timber sale licensees constructed 71 kilometres of road and deactivated 93 kilometers of road during the audit period. The Board audited 38 kilometres of road construction and 46 kilometres of road deactivation.

Fire Protection

Fire preparedness was audited on 3 of 4 active operations encountered in the field for compliance with the *Wildfire Act*. Fire hazard and abatement activities and obligations were examined on 18 of the 24 harvested timber sales.

Findings

The audit found, with one exception, that the planning and forest activities undertaken by BCTS complied in all significant respects with the requirements of FRPA, WA and related regulations, as of September 2011.

The audit found the planning and forest activities undertaken by TSL holders complied in all significant respects, with the requirements of FRPA, WA and related regulations, as of September 2011.

The auditors identified one situation of significant non-compliance by BCTS with respect to a bridge installation and a newly constructed road. These findings are discussed below in the *Road and Bridge Construction* section.

The audit also found BCTS' road maintenance practices require improvement, as discussed below under *Road Maintenance*.

Road and Bridge Construction

During the fall of 2011, BCTS constructed a road and installed a bridge to provide access to a new timber sale. Both the bridge and the road were located near a potential fish-bearing stream.

During road construction, contrary to section 39(1)ⁱⁱⁱ of the *Forest Planning and Practices Regulation* (FPPR), natural drainage patterns were not maintained on a 100-metre section of the road. Since flows were concentrated from three non-classified drainages into one and inadequate siltation controls were used, sediment-laden water was carried downstream towards a fish-bearing stream. The potential impact of this sediment was not quantified.

During bridge construction, contrary to Section 57^{iv} of the FPPR, a bridge was constructed outside the in-stream work window^v without prior approval. As well, the planned 15-metre, single-span bridge that was designed to temporarily cross the fish stream was not used. Instead, a low level crossing consisting of two three-metre deck sections, with logs and debris placed within the riparian area between the two stream channels, was installed to span the two defined channels at the crossing site. However, after steady rains and early-season snowmelt, the water rose to include the structure within the stream channel.

As both the road and bridge construction practices increased the risk of impact to fish and fish habitat and were not conducted in a manner that was unlikely to harm fish or fish habitat, contrary to sections 39(1) and 57 of FPPR, this is considered a significant non-compliance.

Subsequent to the audit, BCTS issued a stop work order, consulted an environmental official, developed a mitigation plan and removed the decks, logs and debris from the stream channel at the bridge site. It also installed additional culverts and sediment traps on the road to restore natural drainage patterns and control sediment.

Road Maintenance

Auditors noted two locations where wilderness roads^{vi} were partially washed out. The first involved a road prism failure at a 900-millimetre culvert, where some sediment had entered a fish-bearing stream. BCTS was aware of the washout and was planning to replace the culvert in 2012. However, there was no plan to stabilize the washout during the interim.

At the other location, approximately 60 metres of ditch line had eroded into the road prism. There was no impact from the sediment; however, erosion of the road prism at this, and at the first site, presented a safety hazard and neither were marked.

Although it is a requirement to maintain the structural integrity of the road prism and protect fish habitat on a wilderness road, as these were isolated incidents and the impacts to fish habitat were minor, this is considered to be an area requiring improvement.

Operational Planning

BCTS incorporated FRPA objectives into the FSP and site plans and forest practices met the measurable results and strategies set out in the FSP. The FSP was consistent with legislated requirements and planning at the landscape and stand levels was consistent with both the FSP and legislated requirements.

BCTS addressed site-specific resources in the site plans by accurately identifying and prescribing practices for resource features, including streams and wetlands, sensitive or unstable soils, wildlife habitat, old growth management areas (OGMA), visually sensitive areas and cultural or heritage sites. BCTS refers its plans to other resource users to ensure their interests are adequately addressed.

BCTS monitors how it is meeting FRPA objectives through participation in the Mackenzie Sustainable Forest Management Plan (MSFMP)^{vii}. In cooperation with other major licensees in the Mackenzie District, BCTS maintains a database to track and report annually on achieving resource objectives such as wildlife tree patch retention targets, OGMA disturbances, forest structure and basal area retention targets.

Timber Harvesting

The audit found that harvesting conducted by the TSL holders was completed in accordance with requirements of legislation and site plans.

Good riparian management was demonstrated by excluding riparian features from harvest areas, adhering to machine-free zones, felling and skidding away from streams and retaining streamside vegetation where required.

Soil disturbance was well managed by operating during favourable weather conditions and by minimizing the construction of permanent roads.

Road and Bridge construction, maintenance and deactivation

No concerns were identified with road construction, maintenance or deactivation, with the exception of the issues previously discussed. Regular road and bridge inspections were carried out according to BCTS' risk rating process. Roads were stable and stream crossings were well maintained and in good condition. Deactivation work was well done, with effective cross-ditching and armoring.

No concerns were identified with bridge construction and maintenance, with the exception of the issue previously discussed. Bridges are regularly inspected, maintained, and removed and/or replaced when necessary.

Silviculture Activities and Obligations

There were no significant issues identified with brushing, planting, site preparation and regeneration or free-to-grow obligations. BCTS maintained accurate silviculture records and conducted timely silviculture activities. BCTS also met government seed transfer requirements as well as free-to-grow and regeneration obligations within the required time frames. Site preparation activities did not impact any forest resources.



Comandra blister rust in a plantation near Mackenzie.

BCTS has adopted the Rust Management Strategy for the Mackenzie Timber Supply Area.^{viii} The strategy provides ecosystem based operational guidance to best manage stands with rust incidence, using a rust hazard rating approach. This strategy will assist in determining silviculture treatments to achieve free growing in rust infested cutblocks.

Fire Protection Activities

The three active timber sale licensees visited were adequately prepared for a fire and met the requirements of the *Wildfire Act*.

Fire hazard was assessed for most completed cutblocks and BCTS harvest inspections noted where assessments were due for more recently completed blocks. Hazard assessment and abatement was completed on half of the cutblocks sampled. For the remainder, hazard abatement is planned for later, when harvest is complete, or for when conditions are suitable for burning or chipping.



Slash piles are arranged along the roadside, in the left of the photo, for chipping.

BCTS augments TSL holder abatement activities by chipping logging debris to produce secondary wood products.

Audit Opinion

In my opinion, except for the road and bridge construction issue identified below, the operational planning; timber harvesting; road construction, maintenance and deactivation; silviculture; and fire protection activities carried out by BCTS and its TSL holders in the Mackenzie District between September 1, 2009, and September 30, 2011, complied in all significant respects with the requirements of the *Forest and Range Practices Act*, the *Wildfire Act* and related regulations, as of September 2011.

In reference to compliance, the term “in all significant respects” recognizes that there may be minor instances of non-compliance that either may not be detected by the audit, or that are detected but not considered worthy of inclusion in the audit report.

As described in the *Road and Bridge Construction* section of this report, the audit identified a situation of significant non-compliance related to the road and bridge construction on the THNA 44400 Road.

Without further qualifying my opinion, I draw attention to the *Road Maintenance* section of the report, which describes an area requiring improvement.

The *Audit Approach and Scope* and the *Planning and Practices Examined* sections of this report describe the basis of the audit work performed in reaching the above conclusion. The audit was conducted in accordance with the auditing standards of the Forest Practices Board. Such an audit includes examining sufficient forest planning and practices to support an overall evaluation of compliance with FRPA and WA.



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Victoria, British Columbia
March 21, 2012

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- i Mackenzie Land and Resource Management Plan:
<http://www.ilmb.gov.bc.ca/slrp/lrmp/princegeorge/mackenzie/index.html>
- ii A forest stewardship plan (FSP) is a key planning element in the FRPA framework and the only plan subject to public review and comment and government approval. In FSPs licensees are required to identify results and/or strategies consistent with government objectives for values such as water, wildlife and soils. These results and strategies must be measurable and once approved are subject to government enforcement. FSPs identify areas within which road construction and harvesting will occur but are not required to show the specific locations of future roads and cutblocks. FSPs can have a term of up to five years.
- iii *Section 39 of the Forest Planning and Practices Regulation:*
Natural surface drainage patterns
39 (1) If an authorized person constructs a road, a temporary access structure or a permanent access structure on an area, the person must maintain natural surface drainage patterns on the area both during and after construction.
(2) Despite subsection (1), if it is not practicable for an authorized person to maintain natural surface drainage patterns during the construction of a road, a temporary access structure or permanent access structure, the person must ensure that the altered surface drainage pattern is compatible with the original natural surface drainage pattern by the earlier of
(a) the end of the construction, and
(b) the next freshet.
- iv *Section 57 of the Forest Planning and Practices Regulation:*
Protection of fish and fish habitat
57 An authorized person who carries out a primary forest activity must conduct the primary forest activity at a time and in a manner that is unlikely to harm fish or destroy, damage or harmfully alter fish habitat.
- v To reduce the risk of impacts to fish and wildlife populations and their habitats, in-stream works and vegetation clearing are limited to non-critical periods of the year, known as the reduced risk work window for fish bearing streams. It is a period of least risk during which in-stream works are permitted. When works are timed to occur during the in-stream window, there is a reduced risk of damage to spawning habitat, fish eggs, and juvenile fish and reduced impacts to adult and juvenile aquatic organisms that may be migrating, over-wintering or rearing. If the in-stream reduced risk work window is followed, it is expected that risks to aquatic resources will be significantly reduced or eliminated. The in-stream work window for bull trout in the Omineca Region, applicable to the Mackenzie District, extends from July 1 to August 15 of each year. Works outside of the in-stream window may only be completed if a technical rationale completed by an appropriately qualified professional is provided to and approved by an environmental official. (Region 7 Omineca – Reduced Risk Timing Windows for Fish and Wildlife: Standards and Best Practices for In-stream Works)
- vi Wilderness roads are forest service roads, or roads authorized under a road permit, a cutting permit, or a timber sale licence that does not provide for cutting permits, a special use permit or a woodlot licence, that is not being used by industrial users. A person required to maintain a wilderness road must ensure that the structural integrity of the road prism and clearing width are protected and that the drainage systems of the road are functional, to the extent necessary to ensure there is no material adverse effect on a forest resource.
- vii Mackenzie Sustainable Forest Management Plan:
http://www.canfor.com/resources/sustainability/SFM_Plan_Mackenzie_Dec_08.pdf
- viii Rust Management Strategy for the Mackenzie Timber Supply Area
<http://www.for.gov.bc.ca/dmk/publications/RMS%20Version%201.1%20April%2017%202007.pdf>

Appendix 1:

Forest Practices Board Compliance Audit Process

Background

The Forest Practices Board conducts audits of government and agreement-holders under the *Forest and Range Practices Act* (FRPA), section 122, and the *Wildfire Act* (WA). Compliance audits examine forest or range planning and practices to determine whether or not they meet FRPA and/or WA requirements. (The transitional provisions of FRPA state that the Code continues to apply to forest practices carried out under a forest development plan, until there is an approved forest or range stewardship plan, at which point the requirements of FRPA apply.)

Selection of Auditees

The Board conducts about eight or nine compliance audits annually. Most of these are audits of agreement holders. The Board also audits the government's BC Timber Sales Program (BCTS). This section describes the process for selecting agreement holders to audit.

To begin with, auditors randomly select an area of the Province, such as a forest district. Then the auditors review the forest resources, geographic features, operating conditions and other factors in the area selected. These are considered in conjunction with Board strategic priorities (updated annually), and the type of audit is determined. At this stage, we choose the auditee(s) that best suits the selected risk and priorities. The audit selections are not based on past performance.

For example, in 2007, the Board randomly selected the Robson Valley Timber Supply Area as a location for an audit. After assessing the activities within that area, we discovered that two licensees had recently closed operations due to financial problems. As the Board has expressed concern in the past about financially strapped companies failing to meet outstanding obligations, such as reforestation, and road maintenance, the audit focused on the status of the outstanding obligations of these two licences.

For BCTS audits, a forest district within one of the 12 business areas within the province is selected randomly for audit.

Audit Standards

Audits by the Board are conducted in accordance with the auditing standards developed by the Board. These standards are consistent with generally accepted auditing standards. The standards for compliance audits are described in the Board's *Compliance Audit Reference Manual*.

Audit Process

Conducting the Audit

Once the Board randomly selects an area or district and determines the scope of audit to be conducted and the licensee(s) to be audited, all activities carried out during the period subject to audit are identified (such as harvesting or replanting, and road construction or deactivation activities). Items that make up each forest activity are referred to as a population. For example, all sites harvested form the timber harvesting population and all road sections constructed form the road construction population.

A separate sample is then selected for each population (e.g., the cutblocks selected for auditing timber harvesting). Within each population, more audit effort (i.e., more audit sampling) is allocated to areas where the risk of non-compliance is greater.

Audit field work includes assessments of features using helicopters and ground procedures, such as measuring specific features like riparian reserve zone width. The audit teams generally spend one to two weeks in the field.

Evaluating the Results

The Board recognizes that compliance with the many requirements of the Code, FRPA and WA, is more a matter of degree than absolute adherence. Determining compliance, and assessing the significance of non-compliance, requires the exercise of professional judgment within the direction provided by the Board.

The audit team, composed of professionals and technical experts, first determines whether forest practices comply with legislated requirements. For those practices considered to not be in compliance, the audit team then evaluates the significance of the non-compliance, based on a number of criteria, including the magnitude of the event, the frequency of its occurrence and the severity of the consequences.

Auditors categorize their findings into the following levels of compliance:

Compliance – where the auditor finds that practices meet Code, FRPA and WA requirements.

Not significant non-compliance – where the auditor, upon reaching a non-compliance conclusion, determines that one or more non-compliance event(s) is not significant and not generally worthy of reporting. However, in certain circumstances, events that are considered not significant non-compliance may be reported as an area requiring improvement.

Significant non-compliance – where the auditor determines a non-compliance event(s) or condition(s) is or has the potential to be significant, and is considered worthy of reporting.

Significant breach – where the auditor finds that significant harm has occurred, or is beginning to occur, to persons or the environment as a result of one or many non-compliance events.

If it is determined that a significant breach has occurred, the auditor is required by the *Forest Practices Board Regulation* to immediately advise the Board, the party being audited, and the Minister of Forests, Lands and Natural Resource Operations.

Reporting

Based on the above evaluation, the auditor then prepares a draft audit report. The party being audited is given a draft of the report for review and comment before it is submitted to the Board.

Once the auditor submits the draft report, the Board reviews it and determines if the audit findings may adversely affect any party or person. If so, the party or person must be given an opportunity to make representations before the Board decides the matter and issues a final report. The representations allow parties that may potentially be adversely affected to present their views to the Board.

The Board then reviews the auditor's draft report and the representations from parties that may potentially be adversely affected before preparing its final report. Once the representations have been completed, the report is finalized and released: first to the auditee and then to the public and government.



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