

Archaeology Audit Program

2018 Report

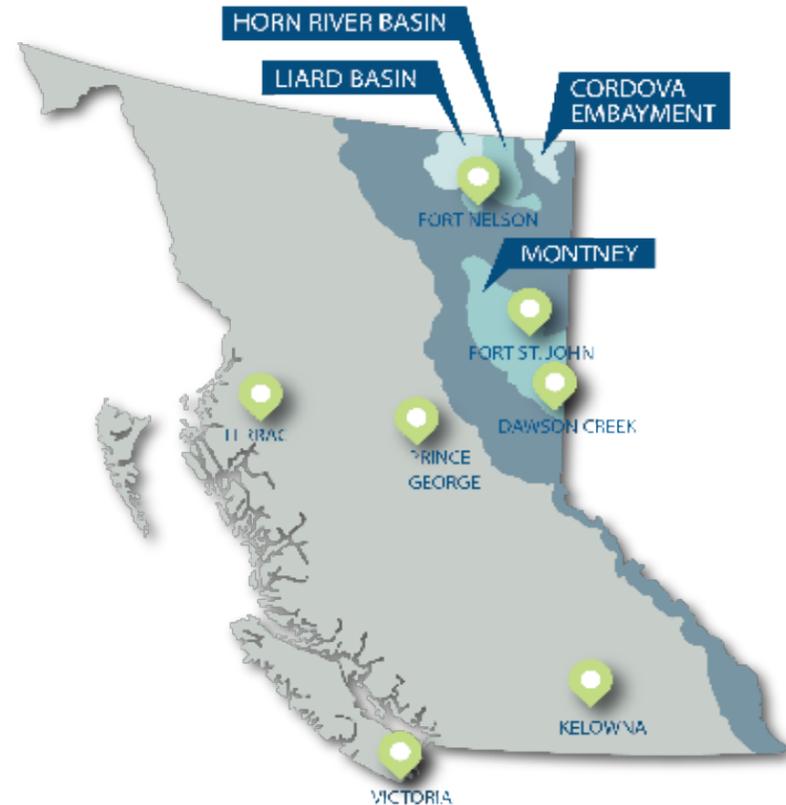


Role of the BC OIL AND GAS COMMISSION

The [BC Oil and Gas Commission](#) (Commission) is the provincial regulatory agency with responsibilities for regulating oil, gas and geothermal activities in British Columbia, including exploration, development, pipeline transportation and reclamation.

The Commission's core services include reviewing and assessing applications for industry activity, consulting with First Nations, cooperating with partner agencies, and ensuring industry complies with provincial legislation and all regulatory requirements. The public interest is protected by ensuring public safety, respecting those affected by oil and gas activities, safeguarding the environment and ensuring equitable participation in production.

For general information about the Commission, please visit www.bcogc.ca or phone 250-794-5200.



The Commission's workforce consists of over 260 employees operating out of seven locations - Fort Nelson, Fort St. John, Dawson Creek, Terrace, Prince George, Kelowna and Victoria, with the largest number of employees concentrated in Fort St. John, the heart of oil and gas activity in the province. The offices in Fort Nelson and Dawson Creek ensure the Commission's presence in the communities of the Horn River Basin and Montney gas plays respectively.

OUR VISION

Safe and responsible energy resource development for British Columbia.

OUR MISSION

We provide British Columbia with regulatory excellence in responsible energy development by:

- Protecting public safety,
- Safeguarding the environment, and
- Respecting those individuals and communities who are affected

OUR VALUES

Transparency is our commitment to be open and provide clear information on decisions, operations and actions.

Innovation is our commitment to learn, adapt, act and grow.

Integrity is our commitment to the principles of fairness, trust and accountability.

Respect is our commitment to listen, accept and value diverse perspectives.

Responsiveness is our commitment to listening and timely and meaningful action.

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INTRODUCTION

PURPOSE OF REPORT

The Commission introduced the Archaeology Audit Program (AAP) in 2008 to assess oil and gas companies' (permit holders') ability to manage archaeology resources. The AAP was created as a necessary component of the performance-based and professional reliance review process for the management of archaeology resources by permit holders. It is the permit holders' responsibility to ensure all legal and regulatory obligations are met.

Oil and gas applicants are expected to engage archaeology professionals to evaluate archaeology conflicts within their proposed development areas. The Commission expects, under such a process, permit holders take responsibility and are accountable for the protection and management of heritage resources. Permit holders must ensure planning and development activities comply with the Heritage Conservation Act (HCA) and meet conditions set out by the Commission.

The Commission provides support throughout the entire life cycle of each project to assist permit holders in achieving best practices when managing archaeology resources. The AAP is engaged at the post-construction phase of the project when the Commission evaluates the effectiveness of the permit holder's performance by auditing their archaeology management system.

Each audit cycle considers changing trends in the oil and gas industry to ensure all aspects and types of development are considered. Previous audit results help focus the Commission's resources on permit holders who have scored poorly in the past. Permit holders selected for audit, but who have produced exemplary audit results in past audits, may be exempt from the current audit and replaced through random selection.

This report details the results of the 2018 AAP for the 11 audited permit holders and includes observed best practices as well as noted opportunities for improvement.

AUDIT PROCESS

The 2018 Archaeology Audit Program was adapted from a two tier process, used in the 2017 AAP, to a single tier. This change reflected an analysis of the audit process and criteria from one year to the next. It's a natural evolution of the AAP so it continues to remain applicable to a majority of permit holders and their management systems.

The 2018 AAP process was organized into nine audit modules. Five of the modules focused on the main categories of management systems: 1) Process Creation & Management, 2) Risk and Risk Management, 3) Communication, 4) Record & Document Control, 5) Compliance Process & Knowledge. Questions within these modules capture specific aspects of archaeological management systems and are designed to analyze the effectiveness of the system. The remaining four modules were added to the audit program to assess the practical realities of archaeological management systems and focused on on-site audit activities: 6) Project specific questions, 7) Document review, 8) Previous Audit follow-up, 9) Field questions. Questions within these modules captured specific aspects of functioning archaeological management systems and were designed to analyze how effectively those systems were operating based on past audit results, published best practices, and professional knowledge.

Minor adjustments were made to the 2018 AAP process to ensure a better flow to the questions during the interview process after initial distribution. This resulted in minor changes to the ordering and structure of questions and to the scoring criteria. Module 8 dealt with previous audit recommendations and only applied to four of the audited companies. It is not included in the cumulative results outlined in this report.

Each audited permit holder received an individual report detailing the results of the audit. The reports provided recommendations for measures that may help improve management practices or controls.

OBJECTIVES AND PRINCIPLES

PRIMARY OBJECTIVES

The AAP has two primary objectives:

1. **To confirm the client management systems are adequate to ensure compliance with legislative and regulatory obligations.** Through a document and field examination process, the annual archaeology audit analyses the ability of the client's management system to meet their obligations as they apply to legislation, permit conditions and other requirements under which industry clients are operating.
2. **To gather baseline data for the establishment of best management practices for archaeology resource management within the oil and gas sector of British Columbia.** Innovative and successful practices will be highlighted annually in the Archaeology Audit Report within the context of cumulative recommendations for improvement. The Archaeology Audit Report recommendations should be used by all companies as best management practices to continually improve their processes.

The AAP is a systematic process which relies on the principles of independence and objectivity. Specifically, the following principles guide the conduct of this audit and the presentation of the audit results:

- Auditors shall act in an ethical manner and make decisions by applying due professional care and based on evidence obtained during the audit.
- Auditors will not act outside their areas of competence and knowledge.
- Auditors will be impartial and independent of the activity that they are auditing, and act without bias or prejudice.
- Confidential information reviewed or obtained during the audit process will be held in confidence by the auditors and only included in the audit report where the information is relevant to an audit finding.
- Audit results will be presented in a fair and accurate manner, and will truthfully reflect the audit activity and evidence.

THE AUDIT TEAM

The 2018 AAP team was comprised of the Commission's Heritage Conservation Program (HCP) staff. This consisted of a Lead Auditor, Auditor and Audit Coordinator. The audit team has extensive experience in reviewing and advising on the work of both oil and gas permit holders and archaeologists working in the province of B.C. Additionally, ISO 9001 and 14001 lead auditor training is provided to Commission HCP staff.



Archaeology site that has been avoided next to a pipeline right of way.

FIGURE 1: CUMULATIVE MAP OF ARCHAEOLOGY AUDIT PROGRAM LOCATIONS

SAMPLING METHOD

The 2018 Archaeology Audit Program Procedure Manual (Manual) is a complete guide for the audit process at the Commission and available on the Commission’s website. It should be referenced for complete methodology and sampling details to supplement this report. The manual is modified for each new audit to reflect changes in sampling strategies and audit protocols. It is updated prior to each new audit year and details sampling rationale and provides proven best management practices for auditees to review.

The parent sample for the 2018 audit was chosen from applications approved from 2013 to 2016. A total of 1,671 applications were approved in 2016 (including applications for amendments). A total of 72 applicants were identified from the approved applications. Projects constructed in 2016 were selected and evaluated for archaeological concerns. Ultimately, all applicants in the review were chosen for audit, as the final sample group of suitable projects proved to be quite small. The resulting sample population consisted of 11 permit holders with a total of 17 projects and 31 archaeology sites. Figure 1 illustrates the distribution of field audits conducted to date through the AAP with those of the 2018 AAP illustrated in orange.

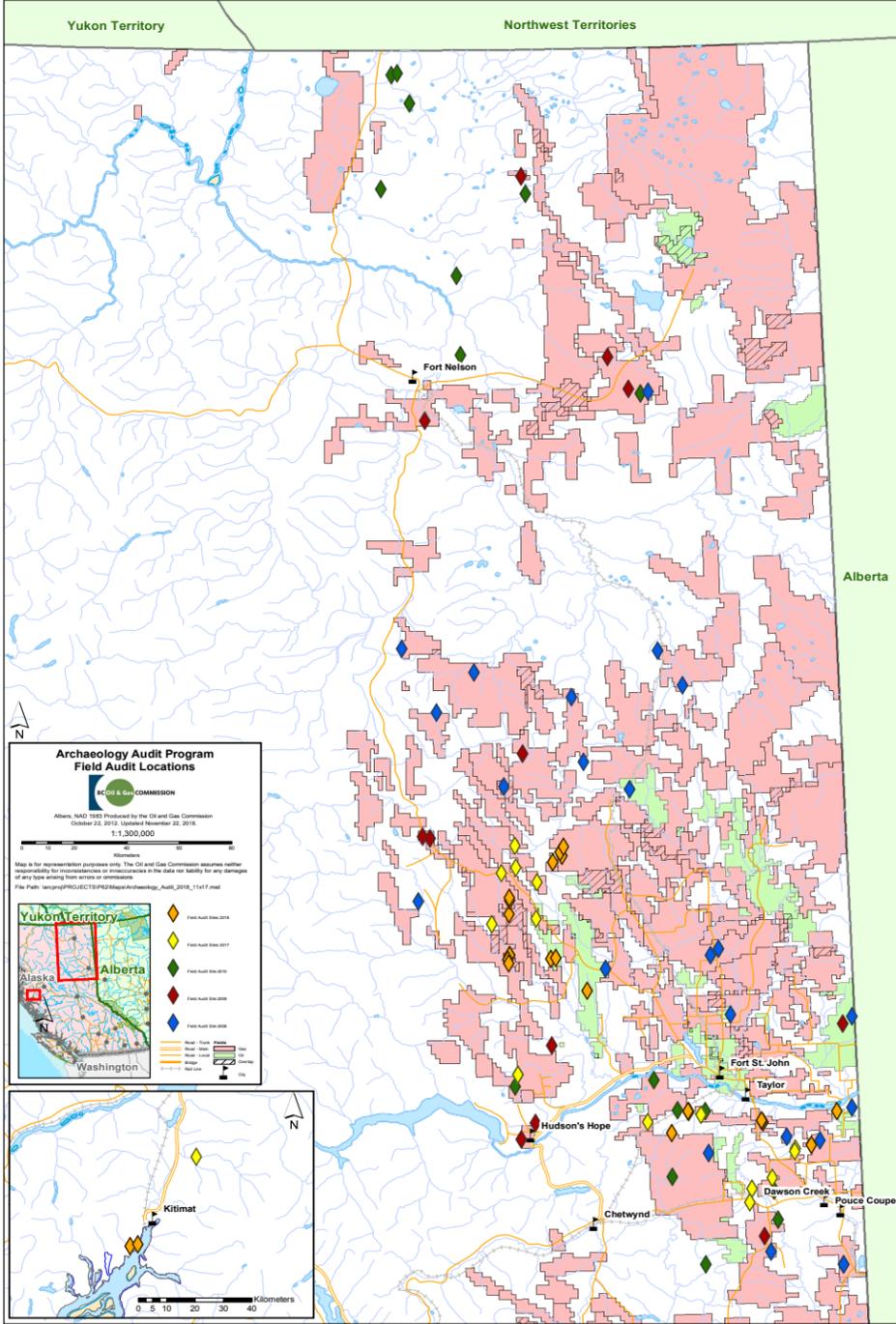
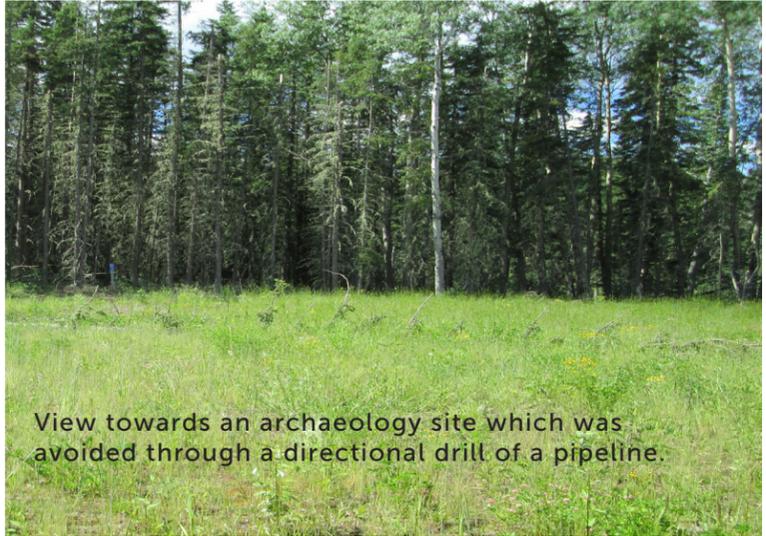


TABLE 1: MEASUREMENT CRITERIA AND FUNCTIONAL OBJECTIVES

Module	Criteria Measured	Functional Objective
Management System Requirements		
Module 1	Process Creation and Management	Supports adherence to legislation and regulatory requirements through established processes.
Module 2	Risk and Risk Management	To establish the level of risk a company is willing to take and how that risk is managed.
Module 3	Communication	To establish communication competence between administrative/office personnel and field crews.
Module 4	Record and Document Control	Transfer of information between relevant parties to support project success and regulatory compliance.
Module 5	Compliance Process and Knowledge	Level of knowledge for processes that ensure compliance with regulatory requirements and legislation.
Verification Through Inspection		
Module 6	Project Specific Questions	To determine the level of communication about archaeological sites and site management.
Module 7	Document Review	To confirm that the correct & appropriate archaeological management documents are transmitted to the field crews.
Module 8	Previous Audit	To ascertain if recommendations from the previous AAP audit have been implemented.
Module 9	Field Questions	On-site corroboration that management systems were followed.

DATA ANALYSIS

Management systems consist of several components that work together and may be examined independently to evaluate the overall strength of the system. This audit examines nine (9) main components, referred to in this audit as modules. Each module is designed to examine specific aspects of the client’s management system in order to analyze the extent to which the management system is functioning. The information gathered from each module helps identify gaps between the recommended approach and the approach used by the applicant companies. The results of document reviews, interviews and field inspections may identify possible weaknesses which could cause a system failure. Table 1 outlines the criteria measured and corresponding functional objective for each module.



View towards an archaeology site which was avoided through a directional drill of a pipeline.

Table 2 details each question presented during the audit and the modules to which the questions relate. The scoring criteria for each question is from observations of past best and worst practices demonstrated by permit holders. For each question asked, responses directly relate to the range of performance values established prior to audit. Auditee responses were compared to the control set of possible answers and a finding assigned.



Archaeological site flagging on a tree which has been cut down. A potential non-compliance.

TABLE 2: AUDIT MODULE QUESTIONS

Module 1: Process Creation and Management
1. Can you describe your role and the work you do for the company?
2. Were you the field supervisor for the audited project(s)?
Module 2: Risk and Risk Management
1. Would there ever be a time when construction begins prior to the archaeological assessment being completed?
a. What is the process if the project is amended after construction starts to ensure all areas have been reviewed/assessed by an archaeologist?
2. If construction begins prior to the archaeological assessment being completed, how do you know what areas are ready for construction and what areas have yet to be subject to an AIA?
3. Every company has a process in place to ensure sites have been flagged/marked prior to construction commencing.
a. What is the process, how do you know if the flagging is complete?
b. Is the process for tracking completion of archaeology site flagging written in a document?
c. Can you show me the document that outlines this process?
d. Is there a position responsible for tracking the completion of archaeology site flagging?
4. Are the construction plans updated for areas of sensitivity?
a. Is there a process for updating the construction plans with areas of sensitivity?
5. Is there a position responsible for monitoring construction around archaeology sites?
a. Is monitoring around archaeology sites a standard practice?
Module 3: Communication
1. Is there a formal process in place between the office and field staff for the communication of archaeological field work requirements?
a. Is communication of archaeology field work between the office and field staff documented?
b. Can you show me your documented procedure for communication of archaeological field work requirements between the office and field staff?
c. Is there a position responsible for ensuring information is transmitted between the office and field and vice versa?
2. How is it communicated to the field that archaeology work is completed?
a. Is this communication tracked?
b. Can you show me the communication tracking documents?
c. Is there a position responsible for ensuring the field crews are aware the archaeology work is complete?
3. Is there an orientation meeting prior to construction commencement to alert crews of the location of archaeology sites?
4. Is <i>each</i> crew specific to <i>each</i> construction activity oriented on the specific location of archaeology sites?
a. If each specific crew is oriented on the specific location of each sites, how is this done?
b. How do you manage for the risk to archaeological site impact if crews are unaware of the site locations?
c. How are crews made aware of the medium utilized to indicate the location of the archaeological site?
d. Is there any additional training provided to crews in terms of archaeology?

5. Do you have proximity meetings during construction and clearing activities to remind crews they are getting closer to an archaeology site?
a. Is attendance at project meetings tracked?
b. Are work instructions signed onto?
Module 4: Record and Document Control
1. Do you have a document i.e.: checklist in place for tracking regulatory requirements that surround the project?
a. Is archaeology included on the check list for regulatory requirements?
b. If regulatory tracking for archaeology requirements is conducted using a medium other than a check list, how is this done and what is specifically tracked?
2. AIA report submissions are a condition of permit. How are outstanding AIA report submissions tracked?
a. Do you know if report submissions are up to date?
b. Is there a position responsible for tracking outstanding AIA report submissions?
c. What is your process for tracking outstanding AIA report requirements?
3. Is there a check list for the contents of the construction package?
a. Who is responsible for ensuring everything on the check list is in the construction package?
b. Is the same person responsible for ensuring the most up to date information is included in the construction package?
4. Is there a position in the field responsible for receiving the construction package from the office?
a. How is receipt of the construction package tracked?
Module 5: Compliance Process and Knowledge
1. What is the process for accidental entry into an archaeology site during construction?
a. Is that process written?
b. Is that process disseminated to your crew?
c. Can you show me the process for stop work?
2. Is there a post construction inspection conducted to confirm archaeology site mitigation strategies were followed?
a. Who is responsible for the post construction inspection?
b. Are post inspections tracked?
c. Can you show me how post inspections are tracked?
3. Are you familiar with the legislation that protects archaeology sites?
a. Are crews informed (trained) in the legislation protecting archaeology sites and the penalties associated with the disturbance of those sites?
4. What happens if the construction crew identifies artifacts during construction?
a. Is there a procedure?
b. What is the name of the procedure?
c. Can you show me the stop work/chance find procedure?
d. Do crews sign off on this procedure?
e. Is crew sign off of the stop work/chance find procedure tracked?
Module 6: Project Specific Questions
1. At what point in the process were you informed that archaeology sites were identified in the field?
a. How were you notified about the identification of archaeological sites on this project?
2. Is the most recent construction plan revision reflective of approved mitigation plans?

3. Is the mitigation approval letter issued by the Commission included in the construction package?
a. Can you show me?
Module 7: Document Review
1. Is this document contained within the construction package?
a. AAIF
b. Archaeological Assessment Report (AIA, PFR, AOA)
c. BCOGC Development Permit
d. BCOGC Mitigation Approval Letter
e. Project/Construction Plans
f. Archaeology Management System Plan (if available)
g. BCOGC Section 12 Permit (if applicable)
h. Monitoring Report (if applicable)
i. Checklist
j. Any documents that will assist the construction supervisor with answering the interview questions (project communication records, work instructions, training manuals, maps, pre-construction, package, etc.)
Module 8: Previous Audit
1. Has everyone read the report from last year?
2. Have any of the recommendations been implemented?
Module 9: Field Questions
During the course of the field investigation, can the auditor observe that:
1. All mitigation measures are in place?
2. No cultural materials are visible in disturbed areas?
3. Field observations match information presented in applicable documentation? e.g. AAIF, archaeological reports
4. Were the archaeology sites marked in the field?
a. By who?
b. Was the field construction supervisor able to guide the audit team to the archaeology sites?



Note bend in the right of way to avoid the archaeology site.



View from within an archaeology site of the avoidance flagging.

AUDIT FINDINGS

The audit findings reflect the assessed risk for management system failure or success based on deficiencies or best practices noted during the audit. Audit findings have four categories representing a range from best practices to non-conformance vulnerability. A fifth category, Information Requested (**IR**), tracks when the initial information received during the audit was insufficient to assign a finding and further information was requested from the permit holder. Based on the additional information received an IR finding was revised to a finding in one of the four main categories. Each standard finding and definition is detailed in **Table 3**.

The results of the 2018 audit indicated an overall satisfactory scoring for most auditees. **Table 4** contains the anonymous individual results sorted by audited companies. **Figure 2** shows the proportion of findings from the 2018 AAP by category.

TABLE 3: FINDINGS CATEGORIZATION

FINDING CATEGORY	DESCRIPTION
EXEMPLARY PERFORMANCE (EP)	Innovative, pro-active or practices that exceed requirements.
SATISFACTORY (S)	Sufficient management system to support compliance with legal and regulatory requirements.
OPPORTUNITY FOR IMPROVEMENT (OI)	Management system with weaknesses that could lead to system breakdown. Minimal effort was afforded for development of a specific management plan to manage archaeological resources or ensure compliance with legal and regulatory requirements.
NON-CONFORMANCE (NC)	Regulatory, legal or other requirements were not met.
INFORMATION REQUEST (IR)	Additional information is requested from the client to clarify the answer provided during the audit interview.

TABLE 4: CUMULATIVE FINDINGS BY INDIVIDUAL COMPANY

	EP	S	OI	IR	NC	N/A
COMPANY A	1	65	6	4	0	7
COMPANY B	0	51	16	11	0	13
COMPANY C	1	70	2	0	0	6
COMPANY D	4	66	3	0	0	6
COMPANY E	6	30	0	0	0	44
COMPANY F	3	54	17	5	0	6
COMPANY G	4	70	2	0	0	4
COMPANY H	8	63	4	0	0	7
COMPANY I	0	60	16	9	0	3
COMPANY J	4	56	10	1	0	10
COMPANY K	0	50	24	19	0	6

FIGURE 2: PROPORTION OF FINDINGS BY CATEGORY

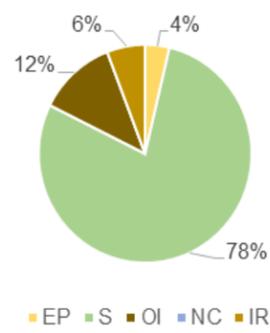
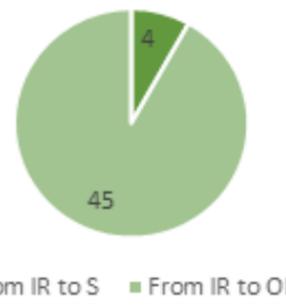


FIGURE 3: FINAL RATINGS FOR IR SCORES



Sorting by cumulative response for each question (Table 5), illustrates an overall trend of strengths and a few weaknesses over a range of management system components. The questions with the highest number of OI scores were Module 4, Question 2A; Module 5, Questions 2 (B) (C); and Module 6, Question 3. The question with the highest number of OI findings focused on the tracking by permit holders of post-construction inspections, which are meant to confirm archaeological site mitigation strategies have been followed during construction. The question with the second highest OI score focused on permit holder’s knowledge of whether their archaeological report submissions through the Commission’s online portals are up-to-date. Finally, the question with the third highest OI score focused on the inclusion of the archaeological site mitigation approval letter in the construction package the permit holder puts together for its construction crews.

The greatest number of EP scores were found in Module 1, Question 2; Module 3, Questions 4 (A) (C); and Module 5, Questions 4 (A) (C). The question with the highest number of EP findings focused on the availability of the original field supervisor(s) for the audit interview, with high scores indicating the original supervisor was present for the audit. The remaining high EP scoring questions all had the same quantity of EP findings. One focused on construction crew orientations to the location and method of indication (ex. flagging tape) of archaeology sites. High scores indicate each specific construction crew received orientations to familiarize them with how archaeology sites are indicated in the field during construction and the site’s physical location in relation to the project. The other question focused on ‘chance-find’ and ‘stop work’ procedures should an artifact be found during construction. The presence of a documented ‘chance-find’ or ‘stop work’ procedure resulted in a high score.

A number of questions resulted in requests for additional information in order to clarify responses or to provide documentary evidence. The greatest number of IR scores were found in Module 5, Questions 1 (C), and 4 (D) (E). These questions focused on the process for stop-work, whether construction crews sign-off on the procedure, and if sign-offs are tracked. Of note, for questions initially assigned an IR score, the majority resulted in an OI score once information was received. Of the six companies that initially received IR scores, companies B and I did not respond to requests for information. As such, those IR scores were changed to OI scores. Figure 3 shows the proportion of final ratings of initial IR scores changed to OI and S scores.

TABLE 5: CUMULATIVE RESULTS BY INDIVIDUAL QUESTIONS

	EP	S	OI	IR	NC	N/A
Module 1: Process Creation and Management						
Question 1	0	11	0	0	0	0
Question 2	7	4	0	0	0	0
Module 2: Risk and Risk Management						
Question 1	0	11	0	0	0	0
a.	0	10	0	0	0	1
Question 2	0	0	0	0	0	11
Question 3	-	-	-	-	-	-
a.	0	9	1	1	0	1
b.	0	9	1	1	0	1
c.	0	9	1	1	0	1
d.	0	10	0	0	0	1
Question 4	0	10	0	0	0	1
a.	0	10	0	0	0	1
Question 5	0	9	1	0	0	1
a.	0	9	1	0	0	1
Module 3: Communication						
Question 1	0	11	0	0	0	0
a.	0	10	1	1	0	0
b.	0	9	1	1	0	1
c.	0	10	0	0	0	1

	EP	S	OI	IR	NC	N/A
Question 2	0	10	0	0	0	1
a.	0	9	1	1	0	1
b.	0	8	2	2	0	1
c.	0	10	0	0	0	1
Question 3	0	10	0	0	0	1
Question 4	3	7	0	0	0	1
a.	3	7	0	0	0	1
b.	0	1	0	0	0	10
c.	3	6	1	1	0	1
d.	0	10	0	0	0	1
Question 5	1	9	0	0	0	1
a.	0	10	0	0	0	1
b.	0	10	0	0	0	1
Module 4: Record and Document Control						
Question 1	0	8	3	2	0	0
a.	0	7	3	2	0	1
b.	0	1	2	2	0	8
Question 2	0	9	1	1	0	1
a.	0	3	7	0	0	1
b.	0	8	2	0	0	1
c.	0	6	4	2	0	1
Question 3	0	9	2	0	0	0
a.	0	11	0	0	0	0
b.	0	10	1	1	0	0

	EP	S	OI	IR	NC	N/A
Question 4	0	11	0	0	0	0
a.	0	10	0	0	0	1
Module 5: Compliance Process and Knowledge						
Question 1	0	11	0	0	0	0
a.	0	7	3	2	0	1
b.	0	9	1	1	0	1
c.	0	6	4	4	0	1
Question 2	2	7	2	0	0	0
a.	2	6	3	2	0	0
b.	0	3	8	0	0	0
c.	0	2	8	0	0	1
Question 3	0	9	2	0	0	0
a.	1	10	0	0	0	0
Question 4	3	6	2	1	0	0
a.	3	5	3	1	0	0
b.	0	8	3	1	0	0
c.	3	4	4	2	0	0
d.	0	6	5	4	0	0
e.	0	6	5	4	0	0
Module 6: Project Specific Questions/Previous Audit						
Question 1	0	10	0	1	0	1
a.	0	10	0	1	0	1
Question 2	0	10	0	0	0	1
Question 3	0	4	6	0	0	1
a.	0	7	3	3	0	1

	EP	S	OI	IR	NC	N/A
Module 7: Document Review						
AAIF	-	11	0	0	0	0
Archaeology Assessment	-	11	0	0	0	0
Commission	-	11	0	0	0	0
Mitigation	-	8	2	2	0	1
Construction Plan	-	11	0	0	0	0
Archaeology Management	-	2	0	0	0	9
Section 12 Permit	-	4	0	0	0	7
Archaeology Monitoring	-	4	0	0	0	7
Check List	-	11	0	1	0	0
Additional	-	10	0	0	0	1
Module 8: Previous Audit¹						
Question 1	-	-	-	-	-	7
Module 9: Field Questions						
Question 1	-	9	0	0	0	2
Question 2	-	9	0	0	0	2
Question 3	-	9	0	0	0	2
Question 4	-	9	0	0	0	2
a.	-	8	0	0	0	3
b.	-	9	0	0	0	2

¹Module 8 dealt with previous audit recommendations and only applied to four of the audited companies; it was not applicable to seven companies. As such, it was not included in the cumulative results outlined in this report.

HIGHEST NUMBER OF OI SCORES:
 Module 4, Question 2A
 Module 5, Question 2 B & C
 Module 6, Question 3

HIGHEST NUMBER OF EP SCORES:
 Module 1, Question 2
 Module 3, Question 4 & 4 A & C
 Module 5, Question 4 & 4 A & C



View of 'No Work Zone' flagging around an archaeology site.



View of 'No Work Zone' flagging around an archaeology site.



View of an archaeological test pit.

DISCUSSION

A major challenge for every AAP is to ensure the appropriate interviewees are identified by the audited permit holders and they are present for the interview and field inspection. Ideally, this would include the person in charge of compiling and delivery of the construction package to the field crew and the construction supervisor responsible in the field for the particular project(s) under audit. Understandably, these people may no longer be with the company, but a successor holding lateral and current positions is expected to be briefed by the permit holder and present for interview.

The results of the 2018 AAP indicate audited permit holders are making an appreciable effort to ensure the appropriate interviewees are in attendance for the audit interviews and field visits, as demonstrated through the exemplary and satisfactory scores in Module 1.

Audited permit holders received individual draft results letters on the successes and weaknesses within their management systems detected during the audit. The auditees were provided a 14 day response period to comment on the results, or provide additional requested information. During the comment period, 10 companies replied detailing their intentions to implement some or all of the procedures suggested in the draft audit results letter. One company neither submitted nor responded to the Commission's request for supplemental information. Final results letters, incorporating the received feedback on the draft reports, were distributed to all companies following the closure of the response period.

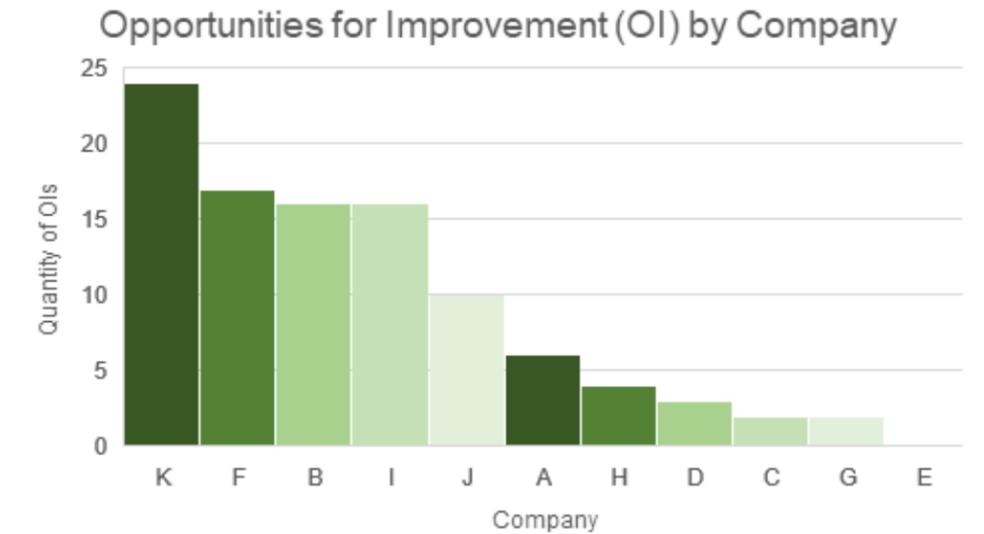
OPPORTUNITIES FOR IMPROVEMENT

Opportunities for improvements (OI) were found in numerous areas and for all but one company. The quantity of scored OI findings by company ranged from two at the low end (excluding Company E, which scored none) to 24 on the high end and are illustrated in Figure 4.

The following list includes some of the findings and observations that are considered weaknesses in archaeology management systems as observed in the 2018 AAP:

- Seven companies did not know if their archaeological report submissions to the Commission were up-to-date.
- Eight companies indicated they did not have a formal tracking procedure for post-construction inspections which are conducted to confirm archaeological site mitigation strategies were followed.
- Six companies did not include the archaeological site mitigation approval letter issued by the Commission in their construction packages.

FIGURE 4



Culturally Modified Tree (CMT).



A wellsite in northeast B.C.

RECOGNIZED BEST PRACTICES 2018

Below is a list of recognized exemplary practices (EP) as practiced by companies and observed in the 2018 audit.

Have the field supervisor responsible for constructing the audited project(s) available for interview during the audit program; seven companies complied with this practice.

Each crew specific to each construction activity receives an orientation on the specific location of archaeology sites in relation to the project and how they are indicated (ex. flagging) in the field; three companies complied with these practices.

Have a documented 'Stop Work' and/or 'Chance Find' procedure should artifacts be identified during construction. Three companies complied with this practice; it is a highly recommended practice.

CUMULATIVE BEST PRACTICES (2008-2018)

Below is a list of the cumulative best management practices observed in previous audits:

1. An on-site construction supervisor provides field orientation for ground crews prior to project start-up when archaeologically sensitive areas exist within a development.
2. Specific individuals are responsible for ensuring all regulatory and legislated archaeological requirements are met for each development.
3. Transfer and receipt of required paper documentation to construction crews is completed prior to project commencement. The documents include archaeology reports and Commission-accepted site mitigation strategies if applicable.
4. Development of a written archaeology resource management plan and formalized standard operating procedures. The management plan fully addresses and includes the following:
 - Relevant legislative and regulatory requirements.
 - Processes for ensuring the completion of archaeological assessments and the timely submission of archaeological reports to the Commission.
 - Checklists to ensure all archaeological requirements are completed prior to construction activities.
 - Processes for fulfillment of requirements surrounding archaeological assessment and site avoidance requirements should range from high level planning to individual task assignments.
 - A briefing of staff, contractors and land agents to ensure familiarity with the contents of the management plan.
5. Create or refine existing tracking systems to include project status and archaeology report submission dates. Emphasis placed on tracking and ensuring information regarding archaeology assessments and site management is accurately and graphically related to field staff.
6. Contact the Commission periodically to reconcile records for regulatory obligations.
7. Develop a communication record, summarizing dates and information exchange. A project communication record serves as a valuable reference for project details and transactions. As well, it is the basis for development or improvement of data distribution processes, as the record illustrates where a breakdown in communication may have occurred.

RECOMMENDATIONS, CONCLUSIONS AND FUTURE AUDITS

RECOMMENDATIONS

The following recommendations are proposed for permit holders based on the 2018 AAP results:

- 1. Permit holders and their audit representatives should become familiar with any past audit results prior to interview.**
- 2. Permit holders should formalize processes for communication, record and document control.**
- 3. Permit holders should review required audit documentation and ensure the proper paperwork is available at time of audit.**
- 4. Permit holders should be prepared to guide the audit team to the field audit location(s).**
- 5. Upon receipt of the audit selection letter, companies should contact the Commission to discuss scheduling.**
- 6. Audited companies should ensure the appropriate personnel are present for the audit interview, as outlined in the selection letter and AAP manual.**

CONCLUSION

The results of the 2018 AAP indicate the majority of companies have practices which address most aspects of successful archaeology resource management systems. Companies scoring the highest utilized management systems which incorporate effective tracking of communications and document control. These management systems ensure accountability for, and effective management of, archaeological resources by effectively communicating the pertinent points of the management system to the correct individuals at the appropriate times. This was frequently achieved by assigning the responsibility of the system to a specific person or position within the company and by using formalized 'checklists' and tracked documentation to ensure quality control.

Additionally, companies scoring the highest were able to demonstrate effective communication between individuals responsible for different portions of the management system throughout the construction process. This communication ensured relevant information was efficiently and effectively passed between the individuals responsible at critical points in the development process. Importantly, this communication was reciprocal which ensured not only that information was communicated but that it was understood and the management system was correctly implemented.

Companies that scored the lowest were those which could not demonstrate or describe their own company's communication system or document tracking for archaeology assessments and reporting. An absence of preparation and organization for the audit suggested these same companies were not concerned with the audit or potential audit results. Nearly all non-compliances related to archaeology are traced back to weaknesses in communication, document control, and failure to identify an individual responsible for the implementation of the management system. Therefore, these are considered the most important aspects of the archaeology audit.



FUTURE AUDITS

Continuing a trend observed in the 2017 AAP, a significant number of Commission permit holders have outstanding permit conditions as they relate to the required submission of archaeology reports. While the Commission continues to work with permit holders outside of the audit to reconcile their outstanding permit conditions, future audits should maintain a component to address archaeology report submissions and permit holders' knowledge of outstanding permit conditions.

Another consideration in future audits will be permit holders' management practices in regards to document control and tracking. An observed trend throughout the AAP is companies which score the highest number of OI findings, demonstrate an inability to describe their communications processes or sufficiently track documentation in regards to archaeological assessments and reporting. Recognizing these weaknesses contribute to permit holders' failures to meet permit conditions, they will continue to be an important focus in future audits.

The AAP itself will remain subject to internal review and revision in order to incorporate improvements to the program based on past audit experiences and newly recognized best management practices. The AAP will be supplemented by a program of archaeological field inspections to be completed by the Commission's Heritage Conservation Department.

GLOSSARY OF TERMS AND ABBREVIATIONS

GLOSSARY OF TERMS

Applicant	An oil and gas company that has applied to the Commission for a development permit.
Archaeology	The study of human activity through the recovery and analysis of what people leave behind.
Archaeology Professionals	An experienced archaeologist who holds a permit under Section 12.2 of the HCA, for the purpose of conducting archaeological impact assessments, and the archaeologists working under the direction of the HCA permit holding archaeologist.
Archaeological Site	A location where archaeological remains have been found. These remains can be stone tools, rock art, cairns, burials, and other evidence of past human activities.
Document	A piece of written, printed or electronic matter that provides information or evidence or that serves as an official record.
Heritage Conservation Act	The provincial legislation protecting heritage property in British Columbia. Under the HCA, archaeology sites are protected against any damage. This protection applies to all sites, regardless of whether they are located on Crown or private lands. The HCA also defines what permits are required in order to study or modify archaeology sites within B.C.
ISO 9001	International Organization for Standardization quality management system requirements. The ISO 9001 sets out requirements aimed primarily at giving confidence in the products and services provided, thereby improving customer satisfaction.
ISO 14001	International Organization for Standardization environmental management system requirements. The ISO 14001 sets out requirements aimed at managing an organization's activities, products, and services in such a way that the environmental conditions with which they interact show a net gain in resilience, diversity, and capacity.
Management System	A set of interrelating or interacting elements of an organization to establish policies and objectives, and processes to achieve those objectives.
Permit Holder	An oil and gas company holding a permit for an oil and gas development. Each development activity requires a permit to be issued by the Commission.
Record	A thing constituting a piece of evidence about the past, especially an account of an act or occurrence kept in writing or some other permanent form.

ABBREVIATIONS

AAP	Archaeological Audit Program
AAIF	Archaeological Assessment Information Form
AIA	Archaeological Impact Assessment
AOA	Archaeological Overview Assessment
B.C.	British Columbia
Commission	BC Oil and Gas Commission
EP	Exemplary Performance
HCA	Heritage Conservation Act
HCP	Heritage Conservation Program of the BC Oil and Gas Commission
ISO	International Organization for Standardization
Manual	Archaeology Audit Program Procedure Manual
NC	Non-conformance
NTS	National Topographic System
BCOGC	BC Oil and Gas Commission
OI	Opportunities for Improvement
PFR	Preliminary Field Reconnaissance
S	Satisfactory

More Information www.bcogc.ca

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