



**Forest  
Practices  
Board**

**An Audit of the Oil and Gas  
Commission's Framework for  
Compliance and Enforcement**

*May 2011*



## EXECUTIVE SUMMARY

### Our Assignment and Approach

The Forest Practices Board was asked to perform an assessment of the Oil and Gas Commission's (OGC) compliance and enforcement (C&E) framework, comprising the structures, processes, systems and documentation used to deliver and support the OGC's work in ensuring industry compliance with legal and permit requirements.

The assessment was performed using criteria adapted from the Forest Practices Board's criteria for the assessment of C&E, originally developed in the forestry context. These criteria assess three broad aspects of compliance and enforcement: the design of the C&E organization and business processes; their application in practice through sampling both compliance and enforcement 'transactions'; and the management framework used to direct, support, monitor and report on C&E activity. Our focus was on the design of structures, systems and processes, but did not include sufficient work to conclude on their effectiveness.

The assignment was conducted during the development and implementation of the Oil and Gas Activities Act (OGAA), and so some aspects in transition could not be fully assessed. While this timing added complexity, it also provided the opportunity to contribute to the change process.

### Findings and Conclusions

The OGC has in place the main elements required to operate an effective compliance and enforcement infrastructure:

- Sufficient knowledge of oil and gas activities and systems to receive, record and maintain activity information.
- A systematic process for selection of activities to inspect.
- An inspection program that conducts a large number of inspections across the range of activities, in which results are recorded, assessed and communicated to permit holders.
- A functioning enforcement capability.
- Management structures and processes, and information systems to direct and support the conduct of compliance and enforcement activity.
- Agreements addressing the interaction with other agencies.
- Processes to communicate with industry on expectations and developments.

The establishment of the OGAA has consolidated the compliance and enforcement framework through greater and clearer requirements for permit holders, and a more complete set of potential sanctions. This is also providing opportunities to increase and improve the suite of available compliance review tools.

This report identifies a number of areas that warrant attention in the ongoing implementation of the compliance and enforcement framework under OGAA.

## Inspection Coverage and Risk

The OGC conducts a large number of annual inspections, which compares well to other jurisdictions. The inspection coverage of wellsites and facilities is consistently strong, and it is possibly too high, particularly in relation to other activities, where the coverage is far more variable. The focus on various activities can change over time, but in our view the inspection coverage for each activity should be derived from formally stated expectations, based on analysis of need. A risk based analysis for each major activity is one way of doing this, and it is timely in light of new legislation, and notably the environmental requirements.

There is a risk assessment process (OSI model) applied to wellsites and facilities, which results in the selection of the highest 1000 sites for inspection. This is a systematic approach, but it drives only 25 percent of inspection selections and there is a quite common view amongst management and staff that the model may not be focusing on the right things.

The 'OSI' is a risk model based on Operator Compliance History, Site Sensitivity and Inherent Risk. A number of factors are input into this process, including level of hydrogen sulphide (H<sub>2</sub>S), type of equipment on site, proximity to population and operator performance. Our concerns with the model, as implemented in its current form, include:

- The model does not distinguish between distinct activities with different risk sets.
- The type and age of equipment does not appear to be fully factored into the model (this is one of the factors most commonly referred to as a risk driver in our discussions with staff).
- It deals with sites mainly from the perspective of proximity to populations, and is not designed at a level of resolution to take into account environmental features in close proximity.

Our conclusion is that the risk model in its current form is too generalized and, because one can see the inputs but it is difficult to see what impact each factor has on selections, it is not transparent and becomes something of a 'blunt' instrument.

One way of assessing the efficacy of the risk assessment model is to verify it through conducting a parallel random sample, and comparing results. The OGC is currently conducting analysis to inform this question. Conducting a risk assessment by activity, based on permit holder requirements under OGAA, should also be used to assess and potentially enhance the design of the OSI model.

The implementation of OGAA, with strengthened permit holder responsibilities in various areas, is providing an opportunity for OGC to increase its use of compliance tools, and in particular the use of audits of permit holder management systems. This has particular application in the context of pipelines and emergency management, but there are also opportunities for inspections of systems aspects of facilities and wellsites, drilling rigs and waste management.

## Conducting Inspections

The OGC's model of generalist inspectors in geographic zones within three areas, each managed by an area supervisor, with specialist assistance available on request, makes sense within the context of geographic constraints and span of control.

Formal training has been a major challenge, given the scope of the technical and environmental knowledge required, the small size of the group and the diverse backgrounds, and off-the-shelf training has not been available. As a result, training for C&E staff has been provided primarily "on-the-job."

Because of the diverse staff backgrounds and new requirements under OGAA, we believe that definition of the required knowledge set and the development of training material aimed at each type of inspection are of high importance. We understand that applicable training on the oil and gas industry for government agencies is now becoming available.

There is a standard inspection form, which is intended for use in all inspections, but does not address all the aspects or features that may be encountered in certain inspection types. This is the case for drilling rigs, and potentially waste management. Similarly, more detail in forms and supporting inspection procedures would seem required for environmental inspections, including stream crossings and water management in road construction, and soil conservation in site clearing.

We found from a review of recorded inspections that it is not always clear what inspectors looked at on site. Where there are deficiencies, the aspects inspected are clearer because the description of deficiencies usually indicates the location involved, but many deficiencies can relate to more than one location on the site.

Similarly, it is not clear from recorded inspections if inspectors check the equipment on site to that authorized in permits. We were able to observe this being done in some of our field visits, but not in others, and none of the inspections in our review identified all equipment on site.

We also found that it is not clear if all inspectors are properly prepared for inspections in terms of information on the sites to be visited. Inspectors are directed to review permits and authorizations for risk ranked inspections, but this is not a requirement for 'random' inspections. The required information is available in the databases and some in paper files, but the files are not easily accessible to all zones. It is therefore not clear if inspectors are preparing for risk ranked inspections as required, and unlikely that they prepare in the same way for random inspections.

In our view, the extent of preparation and recording are key aspects of the quality of inspections, and the ambiguity in expectations is affecting the quality achieved. Taking a little more time to fully document what was inspected (and not inspected) is minimal in the context of average inspection and driving time per inspection. And, reducing the total number of wellsite inspections in order to perform more complete inspections is unlikely to affect the OGC's scope of oversight.

The inspection monitoring process is for supervisors to periodically accompany inspectors in their site inspections. There is no further quality control, aside from the Director's review of recorded inspection results. Our

review of deficiencies identified in inspections confirmed that an actual post-review of inspections is required to determine whether inspectors are conducting inspections to the same quality and in the same way.

## **Incidents and Complaints**

The OGC has established processes for incidents and complaints, including the responsibilities of emergency officers and inspectors, and timeframes for assigning complaints, which is detailed in relevant manuals. We understand that incident management is undergoing complete redesign under OGAA, and so we did not assess conformance of existing processes with the BC Emergency Response Management System.

One item of note is the need for more clarity around responsibility for completion or “closure” of a complaint or incident. Incidents should remain open until any required analysis or survey is complete, and the emergency officer that received and assigned the item should also be satisfied that the matter is properly closed.

## **Ongoing Implementation of OGAA**

OGAA was implemented effective October 4, 2010, and as expected the transition is still in process. We observed a number of aspects of the compliance and enforcement infrastructure that are in process or still need to be implemented. These include:

- Assigning responsibility and developing processes that provide for the investigation of incidents from the perspectives of both root cause and potential civil or criminal sanction.
- Reaching a formal understanding with the Ministry of Environment with respect to ‘calibration’ under the Environmental Protection and Management Regulation, to ensure that OGC’s implementation remains consistent with the policy intent of the regulation.
- Completion of the protocol for internal referral to the C&E function, that addresses priority, risk and reporting back to referring departments.
- Systems support for incidents and complaints and the investigation function.

There are also a number of agreements with other agencies that, due to changes in practices under OGAA and the October 2010 government re-organization, require or are under revision.

## **Management of Compliance Information**

Performance measures and ongoing internal reporting of C&E activity are in place. However, while C&E monitors adherence to the top 1000 inspections, there are few other targets. The plan does not establish expectations or measures for the remaining 3000 or so inspections, and there are no measures for the number of inspections completed by each inspector. In our view, there should be more analysis of the adequacy of inspection coverage based on need.

One of the major themes in C&E literature is the integration of compliance information to better understand patterns of non-compliance. Many organizations suffer from a lack of structure for doing this, and the OGC is no exception. In our view, compliance information should become a corporate resource, enabling analysis and identification of trends based on comprehensive performance information.

And this is consistent with the introduction of ‘persistent non-compliance’ thinking in OGAA, which involves the increased use of other compliance management processes such as compliance management systems, and audits; and further development of the concept and measurement of compliance.

### **Business Area Compliance Management Systems**

A number of business areas assess aspects of permit-holder compliance in one or more of the pre-permit approval, construction and operations phases, and therefore have elements of a compliance management system. These should be further developed and formalized, involving the development of objectives, measures of performance, a risk-based monitoring approach, description and rationale for identified review/inspection methods and basis of sampling, and processes for recording, reporting and analysis, as well as an internal review/audit capability and mechanisms for continual improvement. The initial approaches adopted should be based on a formal assessment of the risks specific to the particular business area and to permit-holder performance.



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# 1. INTRODUCTION

## 1.1 Background

The Oil and Gas Commission (OGC) was established in 1998 and was empowered by the *Oil and Gas Commission Act*, the *Petroleum and Natural Gas Act* and the *Pipeline Act*. In October 2010, the Commission was continued under the *Oil and Gas Activity Act* (OGAA). It has authority for permitting and compliance and enforcement activities under OGAA and other relevant legislation through specified enactments and utilizes a “one window” approach to regulating the oil and gas industry in British Columbia.

The purposes of the Commission as described in OGAA, which relate to compliance and enforcement are:

- (a) To regulate oil and gas activities in British Columbia in a manner that:
  - (i) provides for the sound development of the oil and gas sector, by fostering a healthy environment, a sound economy and social well-being;
  - (ii) conserves petroleum and natural gas resources;
  - (iii) ensures safe and efficient practices; and
  - (iv) assists owners of petroleum and natural gas resources to participate equitably in the production of shared pools of petroleum and natural gas.
- (b) To undertake programs of education and communication in order to advance safe and efficient practices and the other purposes of the Commission.

## 1.2 Terms of Reference

The Forest Practices Board was asked to perform an assessment of the OGC’s compliance and enforcement (C&E) framework, comprising the structures, processes, systems and documentation used to deliver and support the OGC’s work in ensuring industry compliance with legal and permit requirements.

The focus was on the design of structures, systems and processes, and included enough review of activities to determine whether the systems and processes are working as designed (and have the potential to be effective), but did not include sufficient work to conclude on their effectiveness.

All current compliance and enforcement systems and processes were assessed, as well as all activities that contribute to compliance. All oil and gas activities were included, except down-hole aspects.

## 1.3 Approach

The assessment was performed using criteria adapted from the Forest Practices Board’s criteria for the assessment of C&E, originally developed in the forestry context.

These criteria assess three broad aspects of compliance and enforcement: the design of the C&E organization and business processes; their application in practice through sampling both compliance and enforcement “transactions”; and the management framework used to direct, support, monitor and report on C&E activity.

The following main assessment criteria were applied:

- Government agencies obtain, use and maintain adequate information on the permit holder activities subject to compliance and enforcement.
- Government agencies have an effective way of identifying risks associated with oil and gas activities and utilizing risk in inspection planning.
- Government agencies conduct a sufficient number of inspections, in a fair, objective and effective way, and accurately record and report results.
- The Investigation, determination and review functions have been established with the appropriate expertise, structures and processes.
- There are established organizational structures, policies and processes that contribute to and support appropriate compliance and enforcement.
- The decisions and actions of different parts of government responsible for compliance and enforcement are coordinated.
- Performance objectives have been defined, measures are in place and reporting systems provide adequate information on the agency's performance in relation to compliance and enforcement objectives.

In those instances where particular aspects of the compliance and enforcement infrastructure were in transition, criteria were narrowed to focus on the existence and design, rather than the effectiveness, of structures, systems and processes.

We did not examine the following criterion—"Government agencies establish, through legislation, permit approval and related processes, expectations for permit holders that are enforceable." Our examination took place during the development and implementation of OGAA and its regulations, and parts of the new legislative framework are not yet implemented. It would therefore have been premature to attempt to assess the clarity and enforceability of the legislation. We briefly assessed the OGC's processes for communication of industry-wide issues with oil and gas operators. We also added a criterion to address complaints and incidents.

Our approach included interviews with management and staff of the C&E group, and of a number of business areas in Engineering, Regional Operations and Public Consultation. We conducted a number of tests and considerable analysis, including comparison to other jurisdictions. We also visited the National Energy Board and the Energy Resources Conservation Board in Calgary to obtain an overview of their oversight approaches. Finally, we reviewed literature to gain an understanding of current thinking on C&E.

Early in the assessment, it became apparent that a number of OGC departments/units were involved in the business of compliance management, through various review, monitoring or inspection processes during the approval, construction or operational phases of oil and gas activity. We adapted our criteria in the examination of these "compliance management systems." As noted above, we have

not attempted to fully address all the criteria, as our assignment was to assess the existence, rather than the effectiveness, of systems and processes as they relate to managing compliance.

We provided interim findings to the Director, C&E in the form of a detailed assessment. We also provided separate assessments to a number of business areas—to engineering for pipelines, facilities and emergency management and to regional operations, addressing their compliance management systems. We have received responses to these documents.

Preparation for, and implementation of OGAA meant that some processes were under development or review at the time of the interviews, and so many aspects were changing. While this added to the complexity of the audit, it also provided an opportunity to contribute to the change process.

We received a high level of co-operation, and a good degree of candour during the assignment.

## 1.4 Trends in C&E

Our research into approaches to C&E included the International Network for Environmental Compliance and Enforcement, Environment Canada and some notable authors who presented some modern thinking on C&E.

The common themes were risk modelling, enabling a focus on higher risk items, and discarding traditional output and productivity (widget) measures, in order to focus on problems. Of particular interest is the integration of compliance information to better understand patterns of non-compliance, where the author noted how many organizations suffer from a lack of structure for doing this. Finally, communication was important to ensure industry understands what compliance means. Working with industry is desirable, but the regulator must be mindful of the risk and appearance of becoming “captive.”

## 2. FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

The majority of our findings are organized within the main criteria employed in the assignment, but we felt it worthwhile to present and discuss some of the main features of the design of the C&E systems and how their design affects the ongoing development of C&E approaches. These findings are presented in the next section, entitled *The Management of Compliance*.

### 2.1 The Management of Compliance

#### 2.1.1 Inspection Coverage

The 2009/10 Field Inspection Annual Report indicates that 4,337 inspections were completed, compared with 4,359 in the previous year. Excluding for a moment the inspections of wellsites under construction, pipelines, geo-physical projects and miscellaneous items, there were 3,580 inspections of wellsites and facilities, out of the population of approximately 25,000, achieving a coverage cycle of approximately seven years.

On the face of it, this seven-year cycle seems adequate to good in relation to comparatives. We observed an approximate 10-year cycle for Texas, which appears comparable to Alberta.<sup>1</sup>

Is the OGC inspecting the right things and to the right extent? This is less clear, for a number of reasons.

There is a risk assessment process applied to wellsites and facilities, which results in the selection of the top 1000 sites for inspection. This is a systematic approach that was developed in another jurisdiction. However, there are differences of opinion about the risk factors used in the model and the weightings applied, and a lack of certainty amongst management that the model is focusing on the right things. We examine this question in more detail in the inspection planning section.

While the top 1000 inspections are selected based on risk, the remaining 2500 inspections are selected by each of the inspectors, who do not record why they are chosen, and so the OGC cannot demonstrate the reasons for selection for the majority of its inspections.

There are also some gaps in the analysis of inspection results; for instance, inspection coverage achieved in relation to each permit holder (percent of each permit holder's sites inspected) has not been regularly analysed. As a result, the OGC has not been able to demonstrate that each permit holder is inspected enough, or that coverage of each permit holder is fair and appropriate based on risk.

Concurrent with this audit, the OGC is conducting analysis of the results of inspections of the top 1000 in comparison to the other selections, to see if the results are comparable, and to attempt to determine whether the top 1000 selection basis is representative.

While the number of inspections of existing wellsites and facilities is at least adequate, the coverage of certain other activities would appear to be less than adequate. This appears to be the case with existing pipelines, and may also be for pipelines under construction and new wellsites, but this is less clear. While the number of inspections of pipelines under construction has increased markedly over the last year, it is not clear if the number of inspections is sufficient, in part because expectations have not been stated. Similarly, expectations have not been stated for the inspections of facility/wellsite additions. In our view, expectations for inspections coverage should be based on a formal risk assessment relating to the specific activity, and also take into account in some way each operator's performance in the particular activity in question.

The implementation of OGAA brings an opportunity to employ additional tools in permit holder surveillance. A major example of this is the management systems approach being adopted in the

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<sup>1</sup> Alberta's approach focuses on selecting sites for inspection based on the OSI model, which may increase or decrease the frequency of coverage based on the resulting score. The coverage measure of the number of years to complete inspections of all sites is not targeted, but is incidental to the risk-based site selection process.

context of pipelines. There are clear practical difficulties for the OGC to examine under-ground pipe, and responsibility for inspection has been passed to industry in the form of integrity management programs, which the OGC will then audit. There is also the potential for audits of a number of permit holder activities and management systems.

### **2.1.2 The Nature of Non-Compliance**

Should non-compliance be an identified deficiency, or the failure to fix the deficiency, or the failure of the management system to anticipate and prevent failures, and adequately maintain safe working order?

The essential design of the OGC's C&E approach is that inspections identify deficiencies, and the permit holder is given time to remedy the deficiency within established timeframes, depending on the seriousness of the deficiency. A deficiency that is not fixed in the specified timeframe usually becomes a non-compliance.

Through this approach, the OGC can be described as, in effect, operating industry's maintenance program. Compliance is considered based on a blend of the absence of and performance in fixing the deficiencies, and the Field Inspection Annual Report indicates that this compliance rate is 74 to 83 percent.

The focus on the remedied rate of compliance puts operator emphasis in the wrong place, as the incentive for industry is to fix problems identified by others, rather than to prevent them occurring. It also means for the OGC that insufficient emphasis has been put on the "initial rate" of compliance, which is nearer to 60 percent at the site level, and the reasons behind this lower level of performance.

The OGC approach is based, in part, on its position that initial compliance rates can be misleading, as they are generated at the site level, not at the level of each individual compliance requirement. There can be many individual requirements applicable to and inspected at each site, and a site will be recorded as deficient if there is a single deficiency, even if most or all other requirements inspected on that site are in compliance. Similarly, a site where many requirements are inspected and all are in compliance is only counted as one compliant site. For these reasons, the rates of initial compliance calculated at the site level are felt to significantly understate true rates of compliance.

In our view, there is merit in this argument. Nevertheless, it is timely to begin to move from this "maintenance program" to a management systems approach, and in doing so move closer to real rates of compliance. The long-term goal should be reliance on, and audit of, industry compliance management systems, but this will not happen overnight and will require considerable work. It is also likely that the major oil and gas companies will be able to move to such a regime more easily than smaller companies. During our interviews, we were made aware of some of this thinking in the context of the major companies, and the draft Inspection and Compliance Operations

Manual refers to industry self-inspection systems and OGC audits.

Similarly, there is a need to incorporate more of a sense of consequence into deficiencies. There are currently categories for high and low risk. Previously this was serious, major and minor, in which serious was intended to signify danger (this is currently being informally maintained in the high, low and low/low categories). The data is available to distinguish between the levels of non-compliance, but the rate of non-compliance for high risk deficiencies is not distinguished from the rate for lower risk items. Distinguishing rates of non-compliance between levels of risk would help to focus effort on those areas requiring attention, and help make sense of non-compliance reporting.

*We recommend that the OGC:*

- *Develop expectations for inspection coverage based on a formal risk assessment that distinguishes between significantly different types of activities.*
- *Create a formal inspection plan for each key permit holder activity, where proven necessary.*
- *Begin to move from the remedied rate to the initial rate of non-compliance, particularly for major operators.*
- *Begin the focus on management systems through the introduction of audits of major operators.*
- *Distinguish between high and low risk non-compliance, focusing C&E attention (and public reporting) on the higher risk/impact non-compliance.*

### **2.1.3 Business Area Compliance Management Systems**

Those business areas that have a stake in permit-holder operations under OGAA will have an interest in permit-holder compliance. The question of compliance can arise in the pre permit approval phase, and also in the construction and operations phases. Each business area that assesses permit-holder (and in some cases operator) compliance is operating a form of compliance management system.

In this report, we generally use the term “compliance management system” (CMS), to refer to those activities in the business area that are concerned with compliance, but do not fall within the purview of the C&E business unit.

There is a need to develop the CMS in the operations of each business unit. This would involve developing objectives, measures of performance, a risk-based monitoring approach, description and rationale for identified review/inspection methods and basis of sampling, and processes for recording, reporting and analysis. To complete the system, it would also need an internal review (or audit) capability, mechanisms for continual improvement, as well as internal protocols around referral to C&E. The CMS for each business area could be described in a policy document that becomes part of a master compliance management framework for the OGC.

In the context of Emergency Management, for example, review processes are being redeveloped under OGAA. Current plans are for

three main elements of the CMS: to conduct an office-based review of 20 percent of permit-holder Emergency Response Plans (ERPs), based on recent experience in reviewing all core ERPs; attend 20 percent of permit-holder “table-top” review exercises; and conduct audits, including live exercises, with a preliminary plan of 5 percent annually. These approaches appear reasonable, on the face of preliminary performance information.

Other business areas have CMS elements under development or consideration. Each monitoring element, and the method and sampling approach applied would be subject to ongoing performance review and improvement. The initial approaches adopted should be based on a formal assessment of the risks specific to the particular business area and to permit-holder (or operator) performance.

*We recommend that the OGC build a compliance management system for each business area: including objectives, monitoring approaches and rationale, performance measures and processes for recording and reporting, ongoing review and improvement, and interaction with other business areas.*

## **2.2 Knowledge of Permit-Holder Activities**

***Audit Criterion – The OGC obtains, uses and maintains adequate information on the oil and gas activities subject to enforcement.***

In order to undertake compliance and enforcement activities with assurance that all applicable activities could be examined, enforcement agencies must be informed of the activities taking place. If the agencies are not aware of all activities in the field, there is little chance that the activities will be examined/ inspected, and there is an increased chance that non-compliance will not be identified and addressed.

Our examination assessed whether sufficient, accurate and timely information is received from parties engaged in oil and gas activities, whether it is received for all activities, and whether the information is maintained in a form that allows reasonable reference and update.

### **2.2.1 Receipt of Information**

In general, OGC has very good knowledge of permit-holder activities. The oil and gas activities eligible for examination/monitoring have been defined under OGAA. There are clearly defined application and approval processes for activities, and notification of activity starts, that are mainly electronic. It is rare for an activity to go ahead without an approval step being completed – it does happen, but it’s mainly about one approval piece being missed rather than the whole activity, and these items are later caught through approval of later changes or inspections.

Improvements have been made under OGAA. Notices of road and lease construction starts are sent into C&E 48 hours prior to start of construction. Under OGAA, all notices of construction or start-up come into the OGC electronically.

Also, most sites are in place for a long time, so the risk of being missed is small. For shorter-term activities, the sites are known—for seismic, any non-compliance remains identifiable, and this is

somewhat true for drilling.

In general, therefore, OGC has sufficient knowledge of activities and the risk of unauthorized activity is low.

### 2.2.2 Maintenance of Information

In general, information on permit-holder activity is maintained in the Kermit or Iris databases. There are also paper copies of equipment at sites. While the information needs related to each activity of interest to C&E have been identified by the C&E function, some of the required information is not readily available.

There is a weakness in the facilities information base, as the database has some historic gaps. There are paper copies of relevant specifications for most of the facilities, although sometimes this historic information is being discovered to be inaccurate. Inspections and applications for modifications provide an opportunity to update the data.

There are also errors and gaps in pipeline information, which we understand are mainly due to ownership changes not being recorded, and which occurred before or during the transition to electronic data. These errors are usually discovered when a purchaser applies to transfer ownership. The data is being corrected on an ongoing basis.

The implementation of OGAA brings a considerable range of additional information needs, and it would be redundant for us to make general recommendations for the development of systems to accommodate that information. We have made a number of observations on information systems in a later section.

## 2.3 Inspection Planning

***Audit Criterion – The OGC conducts a sufficient number of inspections, and has an effective way of identifying risks associated with oil and gas activities and utilizing risk in inspection planning.***

Once government agencies have determined the activities eligible for monitoring (i.e., inspection, site visits, etc.), they need an effective method of determining where to place their inspection efforts. Because they cannot inspect all activities conducted by all parties, they need a way to allocate their resources to minimize the risk that potential impacts to human safety and the environment are not detected. A risk assessment or similar process would be a preferred method of analysis. It is feasible that other methods could also work.

Our examination assessed whether there is a formal risk assessment or prioritization process:

- which includes consideration of all relevant risk factors, including past performance, inherent technical and site risk, and geographic isolation; and
- that addresses all activities, and focuses on high risk items, yet includes a reasonable number of lower risk items.

It also assessed whether the results are documented in an approved annual plan, and whether the plan is adhered to and monitored.

### 2.3.1 Inspection Coverage and Risk

*Inspection Coverage* The 2009/10 Field Inspection Annual Report indicates that 4,337 inspections were completed, compared with 4,359 in the previous year. Excluding for a moment the inspections of wellsites under construction, pipelines, geo-physical projects and miscellaneous items, there were 3,580 inspections of wellsites and facilities, out of the population of approximately 25,000, achieving a coverage cycle of approximately seven years. Inspections arising from complaints and incidents are included in these figures.

On the face of it, this seven-year cycle seems adequate to good in relation to comparatives. We observed an approximate 10-year cycle for Texas, which appears comparable to Alberta. Whether the OGC is inspecting the right things and to the right extent is less clear.

Consider the following statistics from the Field Inspection Annual Reports and current data, which we believe to be rolling 12 months data to November 2010.

Activity	2008-09		2009-10		To Nov 2010
	Industry Activity	# Inspections	Industry Activity	# Inspections	# Inspections
Wellsites constructed	845	-	634	-	-
• Land clearing	-	60	-	111	169
• Drilling/Service Rigs	-	87	-	18	1
Wellsites & Facilities	-	3,829	-	3,587	3,469
Pipelines Built (km)	1,315	-	1127	-	-
• (New & existing)	-	174	-	478	305
Geophysical Programs	45	19	34	10	1
Measurement	-	33	-	7	10
Other	-	157	-	126	147
<b>Total (OGC) Inspections</b>		<b>4,359</b>		<b>4,337</b>	<b>4,102</b>

As noted above, the inspection coverage of wellsites and facilities is consistently strong, and this is in part because it is the focus of a formal risk assessment and plan. This coverage may be too high, particularly in relation to other activities, where the coverage is far more variable. For instance, inspections of drilling activity has declined significantly from about 10 percent in 2008-09, to 3 percent in 2009-10, and less in the current period. This is significant because these inspections are a logical time to address drilling and wellsite waste. The coverage of geophysical projects is also declining, and measurement inspection frequency varies significantly.

The focus on various activities can change over time; for instance, the increase in inspections of wellsites under construction reflects a focus on soil conservation, mainly for sites in the Agricultural Land Reserve. Our point is that the inspection coverage for each activity should be based on formally stated expectations, based on analysis of need. A risk-based analysis is one way of doing this.

*Risk Assessment and Selection* There is a risk assessment process applied to wellsites and facilities, which results in the selection of the top 1000 sites for inspection. This is a systematic approach that was developed in another jurisdiction. But there

are differences of opinion amongst staff about the risks used in the model and the weightings applied, and a quite common view amongst management that the model may not be focusing on the right things.

The OSI, a risk model based on operator compliance history, site sensitivity and inherent risk was developed in Alberta, a jurisdiction with more even-age oil and gas development. A number of factors are input, including level of H<sub>2</sub>S, type of equipment, proximity to population, and operator performance.

The following are our concerns with the model, as implemented in its current form.

- It does not distinguish between distinct activities with different risk sets.
- The type and age of equipment does not appear to be fully factored into the model—and this is one of the factors most commonly referred to as a risk driver in our discussions with staff.
- It deals with sites mainly from the perspective of proximity to populations, and is not designed at a level of resolution to take into account environmental features in close proximity.
- The operator compliance rate is based on deficiencies, which is logical, but it causes “repeat” inspections. We think that repeats should be separately addressed as part of a distinct follow-up population.

Our conclusion is that the risk model in its current form is too generalized and, because one can see the inputs but it is difficult to see what impact each factor has on selections, it is not transparent and becomes something of a “blunt” instrument.

One way of assessing the efficacy of the risk assessment model is to verify it through conducting a parallel random sample, and comparing results. The risk of inspecting the wrong things is mitigated somewhat by the random and “drive-by” selections made by inspectors, but the inspectors do not record why they are selected, and so these too may be focusing too much on certain things, or on the wrong things. In any event, the analysis underway to compare inspection results for the top 1000 and the random selections will inform this question.

Once the inspection approach and coverage are established based on a risk assessment or other basis, it is necessary to periodically assess whether the design is effective (properly assessing performance and identifying any non-compliance that may exist). There is a current analysis capability and some analysis is conducted. However, there is room for improvement, such as ongoing review of each operator’s coverage (percent of sites inspected), and other analysis depending on the C&E approaches adopted. In general, for each activity, the OGC should be able to determine whether it is inspecting each permit holder in each activity enough, and whether each of the coverage is fair and appropriate based on risk. It is possible to include such a “coverage for each operator activity” check as a periodic management review exercise or to include it in the risk-based selection process, potentially as a minimum coverage factor.

There is increasing internal recognition of the potential for adopting different approaches for major operators, such as auditing their maintenance systems or relying on their self-inspections. Such approaches are the logical next step, as the industry becomes more familiar with management system approaches. This would require separating the populations into strata.

Inspections of other activities arise in different ways; the selection method for these is not formalized and responsibility for conducting some of the inspections is not clear.

For new facilities and wellsites, the Facilities Section selects a number of sites for a pre-start-up inspection. Some are conducted by technical specialists in the facilities section, but some are referred to C&E for inspection. There are issues around referral and reporting between the OGC departments, that we address in subsequent sections, but for the purposes of this section, we think that it is important that such items are selected based on a formal assessment of risk, and be recognized by C&E as a distinct inspection population (once the selection is verified), so that expectations are clear and results can be appropriately used and maintained.

The oversight of pipelines provides more challenges, because the condition of underground pipelines cannot be fully assessed from an above-ground inspection. OGC has historically conducted inspections in two ways. C&E does above ground inspections of existing pipelines, and an increasing number of construction inspections, and the Pipeline Section in Engineering conducts a number of construction and pressure test inspections, but these numbers appear less than sufficient. Permit holders have been required to develop and implement integrity management programs since 2006, and Engineering has developed assessment protocols and recently completed a gap analysis on a sample of self-assessments completed by industry.

Under OGAA, industry responsibility for the oversight of pipelines has been confirmed. Permit holders are required to maintain integrity management programs (that comply with CSA Z662) and damage prevention programs, and OGC will audit these management systems.

*We recommend that the OGC:*

- *Recognize distinct populations for certain different activities for the purposes of risk assessment and inspection planning.*
- *Consider distinguishing between new and existing populations within each activity, to more formally recognize referrals from other departments.*
- *Perform a risk assessment, or other needs-based approach, for each activity, in order to determine the inspection method and responsibility.*
- *Amend the risk inputs into OSI based on the risk assessment, and consider amending the operator performance aspect to reduce the number of repeat inspections.*
- *Maintain operator performance information – including statistics on coverage, performance and trends, in order to assess the efficacy of coverage, and potentially base additional inspection selections more on this information.*

- *Separate population into strata – work towards treating major operators through management system approaches.*
- *Confirm risk and the efficacy of inspection coverage through ongoing analysis of the results of inspections, and other monitoring.*

### 2.3.2 C&E Staffing, Organization and Supervision

This section addresses our examination of the staffing, organization and supervision in the C&E function. Our examination assessed whether:

- The organization of the compliance and enforcement unit and application of resources is logical.
- The knowledge and skills necessary to achieve compliance and enforcement objectives are defined.
- Training needs are identified, and staff conducting compliance and enforcement activities have the appropriate expertise and training.
- Staff performing compliance and enforcement functions have been assigned the proper authority.
- Staff receive the information and resources necessary to fulfil their assigned responsibilities.
- Specialist assistance is available and used when required.

#### *The Zone and Generalist Model*

The C&E function has been divided into three geographic areas—Fort St. John, Dawson Creek and Fort Nelson; each with three to six zones, led by an area supervisor. The intent is for inspectors to be generalists—able to conduct most types of inspections, with access to technical specialists for more complex or specialized inspections. Within this model, generalists may develop particular expertise in one or more areas.

This model makes sense within the context of geographic constraints and span of control. Our main concern would be whether specialist assistance is readily available to all areas. Specialists with expertise in facilities and measurement are based in Fort St. John, and we were able to observe them providing assistance to the southern zones. There is likely a challenge in the expertise being readily available to the Fort Nelson area. The specialist position for drilling and service rigs is vacant. There would appear to be a need, particularly in the Fort Nelson area, for some inspectors to develop a form or level of specialty below the level of an expert, to address complex or specialized areas without the need to import expertise on an ongoing basis.

#### *Knowledge and Training*

C&E management is aware of the breadth of the required knowledge set and the issues around the design of training, but the required knowledge set has not been formally defined.

Formal training is a major challenge, given the scope of the technical and environmental knowledge required, the small size of the group and the diverse backgrounds. Training has been available on safety (and H<sub>2</sub>S), basic law and introduction to investigations. As a result, training for C&E staff has been provided primarily “on-the-job,” and some respondents noted this deficiency in training.

Off-the shelf training has not been available, as staff does not need the depth of knowledge typically provided in operator training. However, because of the diverse backgrounds, and management’s developing

expectations under OGAA, we believe that the development of training material aimed at C&E inspectors is of high importance. A five-day course on the oil and gas industry for government agencies is apparently under development at Enform.<sup>2</sup>

We were also informed that training material (how to do an inspection) was to be produced for drilling rigs and for seismic activity. This has now been put on hold until later in the OGAA implementation process to ensure that any new processes or requirements identified under OGAA will be incorporated into the training models. There is also a need for training in the inspection of aspects now formally recognized under OGAA, notably in the environmental aspects of site development: - soil conservation, water management, and in drilling waste.

There is also an internal mechanism in which technical specialists accompany inspectors to the field and approve the “readiness” of new staff to conduct each type of inspection. This is a sound practice.

*Authority* Inspectors performing C&E activities under the previous regulatory regime were formally assigned inspector status by the Commissioner. Under OGAA, the inspectors need authority to enter sites or land to perform inspections or audits (s. 57), ask for specific information or records (s. 38) and to ask industry to perform specific things such as blowout prevention tests for drilling rigs (DPR s. 10). Under s.7 (4) of OGAA, “the Commissioner may designate a person as an official for the purposes of provisions of this Act specified by the Commissioner in the designation,” which means that designation as an official is necessary for inspectors to perform their regular duties. We understand that this authority has been provided in some cases and is in process in others.

Inspectors are not statutory decision-makers, and actions such as ordering compliance or shutting in an operation can only be authorized by the Director of C&E, or a more senior official. We are informed that this arrangement has not resulted in the delay of required action. We would suggest, however, that over time there is the potential for this authority to be delegated to the area supervisor level.

*Direction and Safety* Direction to C&E staff is provided in the Inspection and Compliance Operations Manual, which is currently in draft form (October 2010). It is a work in progress and we would expect further development as the implementation of OGAA continues. The intent is for the manual to be comprehensive in its contents. We have provided our comments under separate cover.

With respect to safety, each inspector is provided fire proof overalls, H<sub>2</sub>S detectors, a hardhat and glasses. Two members of staff mentioned that intrinsically safe cameras were desirable equipment.

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<sup>2</sup> Enform is the training, certification and health and safety services arm of the upstream petroleum industry. Enform is owned, directed and partially funded by six upstream petroleum industry trade associations.

OGC safety policies and procedures outline the safety requirements and procedures to the inspectors in the performance of their duties in the field. OGC policy is to evacuate an area if a possible hazard to their safety is identified. The Inspection and Compliance Operations Manual indicates the required safety equipment, and in both the incident and complaint sections instructs inspectors not to put themselves in harm's way.

*We recommend that the OGC:*

- *Obtain or develop training in all areas of oil and gas requiring inspection, and provide the training to all inspectors.*
- *Develop training and instructions in how to do each type of inspection, and ensure all inspectors performing each inspection type have received the applicable training.*
- *Further develop the expertise of certain generalist inspectors.*
- *Complete the delegation of assigned authorities at the earliest opportunity.*

## **2.4 The Conduct of Inspections**

***Audit Criterion – The design of inspection processes provides for fair and effective coverage of oil and gas activities.***

Inspections are currently the primary tool for assessing oil and gas activities, except for pipelines. The effective conduct of inspections enables the OGC to assess the results of oil and gas activities, identify potential deficiencies (and contraventions), and initiate both corrective and enforcement actions. Weaknesses in inspections could result in risks to human safety and the environment not being detected, significantly reducing government's ability to appropriately enforce legislation.

Our examination assessed whether:

- There are established inspection and monitoring practices, documented in policy; and inspections are performed by staff with appropriate expertise and training.
- Inspections are conducted in accordance with the plan, in a fair, objective and reasonable way, and accurately portray the site conditions.
- Inspection forms are adequate to guide the inspection, addressing the main risks in each activity, and to document findings, and are filed accordingly.
- Documentation of inspections is adequate (clear, sufficient), including conclusions (regarding non-compliance), actions taken and any follow-up action required, and the results of inspections are provided to permit-holders.
- There is an appropriate level of supervision to aid in training and ensure consistency.

Inspection information is properly recorded, maintained and available; and operator performance information is assembled to assess each operator's overall performance and address any compliance concerns.

## 2.4.1 Quality of Inspections

Our audit work comprised accompanying three inspectors (one of whom is a supervisor) in their field inspections, and a review of a sample of inspection results, both in the system and the paper copies.

It is worth pointing out that our comments are not intended as criticism of the actions of individual inspectors. Our brief review of the activity of those we accompanied confirmed a diligent approach to their work. Over time, however, inspectors will interpret requirements differently and develop their own ways of doing things, and circumstances will dictate the need for change in policy and approaches. Our comments are aimed at the systems and processes involved rather than at individual actions.

*Preparing for Inspections* It is not clear to us if all inspectors are properly prepared for inspections in terms of information on the sites to be visited. The draft manual does provide direction on this—“Inspectors should obtain and review Operators’ permits and authorizations for scheduled risk ranked site inspections.” This is not a requirement for “random” inspections. The information to be reviewed is available in the databases and some in paper files, but there are data validity issues, and files are not easily accessible to all areas. It is therefore not clear if inspectors are preparing for risk ranked inspections as required, and unlikely that they prepare in the same way for random inspections.

The extent of preparation is part of the question of the quality of inspections, and in our view, these expectations for inspections are not sufficiently clear.

*Inspection Forms* There is a standard inspection form, which is intended for use in all inspections, but does not address all the aspects or features that may be encountered in certain inspections types.

In practice, we found that there were two different versions of the standard form being used, and a far more detailed form had been used for drilling rig inspections. It is clear that specialized forms are needed for certain areas, where there are more points of inspection and more detailed observations need to be recorded. This is the case for drilling rigs, where an additional section may also need to be added for the waste management aspects. Similarly, more detail would seem required for environmental inspections, including stream crossings and water management in road construction, and soil conservation in site clearing.

*Recording Inspections* From a review of recorded inspections in Kermit, it is not always clear what inspectors looked at on site. Many inspections in our sample had ticks in the “I” (inspected) box indicating what had been inspected, but many did not. A number had a space in the “I” box, which could mean that an aspect was either inspected and passed, or was not inspected. The draft C&E manual indicates that inspectors should indicate whether it is a complete or partial inspection, but does not describe how this is to be done, and it is not currently being done.

Where there are deficiencies, what was inspected is clearer because the description of deficiencies usually indicates the location involved, but some deficiencies can relate to more than one location, such as equipment items needing grounding.

Similarly it is not clear from recorded inspections if inspectors check the equipment on site to that authorized in permits. We were able to observe this

being done in some of our field visits, but not in others, and none of the inspections identify all equipment on site. There is also a limitation in the availability of file information for the two areas outside Fort St John.

This is a question requiring more consideration. The draft Inspection and Compliance Operations Manual (October 2010 version) does not indicate a requirement to check equipment on site to permits, and we did not see many deficiencies for unauthorized (or different) equipment in our sample. But we were also able to observe that there are enforcement actions related to unauthorized equipment.

We acknowledge that a list of deficiencies for each type of equipment may be too much detail for an inspection form. But there is a need for better information on what was included in the inspection, so consideration could be given to a ‘drop box’ for the inspector to note the equipment on site and for the inspector to tick what they looked at.

The extent of both preparation for, and adequate recording of, inspections are major aspects of the quality of inspections. Based on the extent of our review of recorded inspections, it is not clear to us if there is a need for better inspections or better documentation of inspections. But there is an ambiguity in expectations and it is usually not possible to determine from a recorded inspection if it was a walk-through, or survey, or a partial inspection.

In our view, the inspectors should take a little more time to fully document what was inspected (and not inspected). This may take a little more time, but it is minimal in the context of average inspection and driving time per inspection. Also, reducing the total number of wellsite inspections in order to perform better inspections is unlikely to affect the OGC’s scope of oversight.

*Supervision and Consistency*

The area/zone configuration with a lead inspector in each area provides for a reasonable level of supervision, with up to six inspectors in each area.

Once each inspector is approved to perform inspections, the monitoring process is for supervisors to periodically accompany inspectors on their site inspections. There is no further quality control as such, aside from the Director’s review of recorded inspection results. An actual post-review of inspections would be required to determine whether inspectors are conducting inspections in the same way, and identifying the same deficiencies. We performed a brief review of deficiencies identified in inspections, which confirmed that some inspectors are calling certain deficiencies more than other inspectors. Our sample was broad enough to show that this was not purely operator-dependent. The C&E Director had identified the need for more consistency in the description of the deficiency in letters sent to operators.

*We recommend that OGC:*

- *Clarify expectations for preparation prior to inspections, and comparison of authorized equipment to that found on site.*
- *Carefully review its information needs arising from each type of inspection and design forms that provide the required information on each activity inspected.*
- *Improve the documentation of inspections through better recording of what was examined, and consider ways of documenting*

*comparison of equipment on site to that authorized in the permit.*

- *To ensure consistency in inspection results, implement active quality assurance through regular ‘repeat’ inspections by supervisors.*

## 2.5 Incidents and Complaints

*Audit Criterion – The OGC has established effective processes to receive and address public complaints and incident reports (and other self-reporting) from industry.*

Our examination assessed current processes to determine whether:

- There is an established policy and procedure addressing each of public complaints and incidents.
- Public complaints are received, recorded and promptly despatched to a decision-maker or inspector, and are assessed, followed up and reported on in an appropriate way.
- Incident reports from industry are received, recorded and promptly despatched to a decision-maker or inspector, and are assessed, followed up and reported on in an appropriate way.
- Information on complaints and incidents is properly recorded, maintained and available for use in inspection planning and results reporting.

The processes for incidents and complaints are laid out in detail in the Inspection and Compliance Operations Manual (October 2010 draft version), including the responsibilities of emergency officers and inspectors, and timeframes for assigning complaints. For incidents, there are also references to the OGC Emergency Management Manual and Emergency Officer Manual. These manuals contain specific processes, procedures and forms detailing appropriate action to initiate when an incident is received, including the classification of an incident, ensuring the appropriate level of emergency response is taken, and maintaining control and containment of the incident until it is remedied to the OGC’s satisfaction.

We understand that incident management is undergoing complete redesign under OGAA, and so we did not assess conformance of existing processes with the BC Emergency Response Management System (BCERMS).

We performed a brief test to determine if recorded complaints and incidents were ‘closed’ in a timely manner. This coincided with an internal review of the closure of these items. Our review showed that all complaints and incidents initiated since mid-February 2010 are now ‘closed’. We did not assess whether the results and actions were appropriate.

There is a need for more clarity around responsibility for completion or ‘closure’ of a complaint or incident. If an inspector is dispatched, the Emergency Officer assigns the incident to the inspector (who becomes the designated ‘field officer’) in Kermit for inspection data entry. Complaints and incidents can be closed in the system by one individual, which may be the inspector or the Emergency Officer who received the initial call. In our view, incidents should not be closed until any required analysis is complete, and/or requested reports are attached. The Emergency Officer should also be satisfied that the matter is properly closed.

There should therefore be a separate sign-off for the field officer (inspector), the member of staff obtaining any additional information (e.g., air monitoring reports), the technical area representative, and the Emergency Officer that received and assigned the item.

The number of complaints and incidents are reported in the inspections report, but the results are not yet reported. There appears to be limited facility for the analysis of complaints and incidents. We understand that a public safety report is planned for release in the spring of 2011.

*We recommend that the OGC:*

- *Clarify and increase the number of staff members required to sign off on each complaint and incident.*
- *Increase the analysis capability around complaints and incidents.*

## **2.6 Investigations, Enforcement and Determinations**

*Audit Criterion – The Investigation, determination and review functions have been established with the appropriate expertise, structures and processes.*

Because the investigation and determination processes were changing under OGAA, we planned to examine very few aspects of existing processes.

At the time of completion of our audit in January 2011, the structures, authorizations and related processes relating to investigations, decisions and review were still in the final stages of development, and not all had been implemented. Certain other parts of the legislative framework are also still under development, such as a formal understanding with the Ministry of Environment with respect to ‘calibration’ under the Environmental Protection and Management Regulation, to ensure that OGC’s implementation remains consistent with the policy intent of the regulation.

The responsibility for investigation of incidents is not clear. The Engineering Division is interested in conducting investigations to identify the root cause of incidents or failures, in order to improve equipment and/or practices and prevent re-occurrence. C&E also has an interest from the perspective of a potential civil or criminal sanction. The objectives of each drive somewhat different investigation techniques, but there needs to be room for both forms of investigation.

This dilemma was evident in a recent example, and we understand that a protocol for deciding the form and responsibility for investigation is under development. There is also a minor issue related to terminology. There is a need to distinguish between a formal investigation of an incident, and the preliminary investigation of complaints and incidents conducted by inspectors.

This issue gets to the core of a fundamental question in the compliance and enforcement decision-making structure. To whom does compliance information belong, and who should decide how to enforce individual items? We are recommending in this report the development of compliance management systems and a corporate approach to compliance information. And this is consistent with the introduction of ‘persistent non-compliance’ thinking in OGAA and the increased use of other compliance management mechanisms such as CMS and audits. Arriving at the right enforcement

action, in light of all relevant information is not an easy thing to do well. It does require careful placement of the authority to take certain ‘higher-impact’ enforcement action.

C&E investigation staff are well qualified and experienced in enforcement overall. There is a gap with respect to pipeline investigation expertise, but the group has access to technical specialists in the Engineering Group where additional expertise in other specific areas of oil and gas may be required.

There is currently no systems infrastructure for the investigation function. Investigation case information is maintained in an excel spreadsheet, and information in the annual report was prepared manually from the spreadsheet and file information. Further systems support will be required.

*We recommend that the OGC complete the design of its enforcement decision-making structure, with implementation of applicable authorities, and interpretation agreements, at the earliest opportunity.*

## 2.7 Setting Expectations

In addition to the legislation itself, there are other ways in which expectations are set for the oil and gas activities that are subject to compliance and enforcement. These include best practices, which might be established by industry, potentially through industry associations, and/or by government, and any preventative activities undertaken by agencies. The enforcement audit process recognizes the place of these processes and plans as preventative compliance and enforcement activities.

Our examination took place during the development and implementation of OGAA and its regulations, and parts of the new legislative framework are not yet implemented. It would therefore have been premature to attempt to assess the clarity and enforceability of the legislation as expressed in the following audit criterion—“The OGC has established expectations for oil and gas activities which are enforceable and in accordance with legislation.”

We therefore briefly assessed the OGC’s processes for communication of industry-wide issues with oil and gas operators.

Under the previous legislative framework, there was a suite of information letters and bulletins, guidelines, manuals and directives that provided information to industry on issues and expectations, including compliance.

We understand that these approaches will continue under OGAA. There will be new guidance documents and manuals, available on the web-site, and industry will be informed of these through information letters.

As of December 2010, the web site contained:

- Directives and Information Letters - alerting industry of a change in a regulatory requirement.
- Information Bulletins - disseminating information updates to stakeholders on changes in process or practices.
- Safety Advisories - informing industry of safety related practices or Commission observations.
- News releases and reports on OGC activities.

The web site also has flow charts and instructions relating to the new legislation and business process flowcharts.

It is clear that the plan is to provide considerable guidance to support permit holder understanding of, and compliance with, the legislation.

## 2.8 Direction, Organization and Interaction

***Audit Criterion – There should be organizational structures, policies and processes that contribute to and support appropriate compliance and enforcement.***

Effective organizational structure, policy and management direction, and control are necessary to support appropriate enforcement of legislation.

Our examination assessed whether:

- Roles, responsibilities and interactions within the OGC have been defined, agreed upon and documented.
- The organization and approach is working effectively, and addresses the potential for conflicts of interest.
- Policy guidance exists, and is reasonably complete and communicated.
- Authority, responsibility and accountability is clearly defined and documented.
- Management establishes clear and reasonable expectations for the operation of the C&E and compliance management functions.

This section addresses C&E's placement in the organization, our observations about responsibility for certain inspections and/or monitoring, and also referral between business areas and C&E.

### 2.8.1 Organizational Structure and Interaction

The C&E function now resides in the Project Assessment and Compliance Assurance Division (PACA), the division that approves applications. This would appear not to be the ideal location for C&E, as the management of permit applications carries a different set of expectations, but it would appear that the location of C&E has not had a bearing on its independence.

C&E has been assigned responsibility for the compliance and enforcement of operating sites. With respect to the earlier phases of approval and construction, various business areas have elements of activities that address compliance. In this respect, there will be ongoing refinement of responsibilities and definition of processes for referral between business areas and C&E.

There are a number of areas that required attention. We addressed responsibility for pipeline investigations in the previous section. Inspection of existing pipelines is an industry responsibility under OGAA, and there will be audits of permit holder integrity management systems conducted by the Engineering group. Responsibility for inspection of pipeline construction appears less clear, with both Engineering and C&E involved.

Pre start-up facility inspections represent an interesting question. These inspections are conducted to determine if the facility conforms to the approved design (noting that as-built engineering certification is not received for three months). The OGC has performed these in the past, using

inspectors and, for the more complex facilities, technical advisors.

One of the general thrusts of OGAA is to make industry more accountable, and so how should oversight be applied in the case of such facility start-up? As operations would not have commenced at the point of inspection, technically any non-conformance to approved specifications might not yet constitute non-compliance. Is this sufficient reason to withdraw from these inspections? Our view is that this is a high-risk point in the life of a facility (depending of course on the size, product content and location), and so if it is considered high risk by Engineering staff, then this is an activity worth inspecting, particularly if industry is comfortable with this practice, and until such time that permit holders have demonstrated the required level of performance.

There is provision for the use of specialists. There are two technical advisors: – for facilities and measurement, and the drilling and service rig technical advisor position is vacant. They are part of the Engineering Division, but their offices are near to C&E staff. There was evidence of regular use of, and referral to, the specialists by C&E staff. This organizational placement appears to be working well enough.

### **2.8.2 Policy and Management Direction**

The draft Inspection and Compliance Operations Manual is in place, addressing the operation of the C&E function as well as the response to complaints and incidents. It is a work in progress and we would expect further development as the implementation of OGAA continues. While policy guidance is in place for the pre-approval and construction phases of activities in the respective business units, the compliance aspects have generally not yet been described in the form of compliance management systems.

Management's expectations for C&E are generally clear, subject to ongoing refinement in the context of OGAA, and specific decisions around responsibility for certain inspections. The C&E function has annual and quarterly plans, which are compared to actual results. We address performance management for C&E in a later section.

Expectations for the compliance management systems of various business areas: Facilities, Pipelines, Emergency Management and Waste Management have not yet been formally stated. New business processes are in the process of being developed. These issues are also addressed in a later section.

### **2.8.3 Internal Referral to C&E**

The business areas in the Engineering Division and Regional Operations regularly refer items to the C&E function for review/inspection. This is not yet working as it should, because once the items are referred, we heard that some items had not been dealt with, and reporting back is not consistent.

From C&E's perspective, referring departments did not always indicate the precise nature of the interest, and the priority. C&E may have been expecting these to be akin to complaints, but the interest of the business areas may be quite varied. For example, if the items are in the pre-approval phase, such as Regional Operations' interest in an existing item, so that it can decide on a pending permit, or Facilities' interest in comparison of equipment on site to the accepted design in a pre-start-up inspection, these are valid compliance management items, even though the compliance

question may not be applicable as operations will not have commenced.

If C&E is to be involved in these inspections, it needs to regard the referring business areas as clients, and consistently address the referred items and report back to the referring business areas. A protocol is now under development for such inspection referrals. A protocol has also been drafted dealing with the information required in the referral to C&E of items requiring enforcement action.

*We recommend that the OGC:*

- *Develop compliance management systems in those business areas with permit holder oversight responsibilities, including objectives, business processes and rationale for monitoring approaches, and performance measures.*
- *Formalize responsibility for certain inspection and monitoring types.*
- *Continue to perform pre start-up inspections of facilities until such time that permit holder performance warrants other oversight approaches.*
- *Formalize referral and reporting protocols for items referred to C&E by other business units.*

## 2.9 Agency Interaction

***Audit Criterion – The arrangements and interaction between different parts of government responsible for enforcement of oil and gas operators are appropriate, coordinated and documented.***

Effective interaction between the OGC and other agencies responsible for enforcing OGAA (and other aspects of oil and gas activity) is necessary to ensure that no significant gaps in enforcement arise.

We enquired whether respective roles, responsibilities and interactions between the OGC and its partner agencies have been defined, agreed and documented in MOUs; and we were provided copies of a number of the MOUs.

We understand that MOUs were put in place with various ministries and organizations:

- Ministries of Forests & Range, and Environment
- Ministry of Environment
- Ministry of Water Land and Air Protection – Environmental Protection Division Sub-Agreement
- Ministry of Public Safety and Solicitor General – PEP Program
- Ministry of Sustainable Resources – Archaeology and Registry Services Branch
- Ministries of Environment, and Agriculture & Lands with respect to site restoration
- Agricultural Land Commission
- Conservation Officer Service
- Land and Water BC (now split between ILMB and MOE)
- BC Safety Authority - unfired pressure vessels
- National Energy Board

A number of the MOU's are quite old, and due to the October 2010 government re-organization, some of the parties have changed. Also, due to changes in practices under OGAA, a number of the arrangements may be outdated and require revision. We are informed that a number of the arrangements are under revision.

There are no formally established expectations with respect to Worksafe BC (WCB), and no formal agreement. The established procedure on identifying unsafe work practices during inspections is to notify the permit holder and Worksafe BC.

*We recommend that the OGC review its interactions with other government agencies and consider whether business arrangements need to be updated through formal agreements.*

## 2.10 Performance Management and Reporting

***Audit Criterion – Performance objectives have been defined, measures are in place and reporting systems provide adequate information on OGC's performance in relation to compliance and enforcement objectives.***

In order to ensure the effectiveness of C&E and compliance management systems, agencies need to be able to judge their performance by establishing objectives and intended outcomes, and then measuring performance through the use of performance indicators and reliable reporting systems. There must also be the capability to record, analyse and interpret performance information.

Our examination assessed whether:

- Compliance and enforcement objectives are established, clear, appropriate, understood, communicated, and reflected in plans and approaches.
- Measurable targets and/or performance indicators are used to assess performance.
- Performance indicators are objective, verifiable, reasonable and attainable.
- Systems are in place for measuring and monitoring against plans.
- Processes are in place to ensure the reliability of reported data.
- Performance reports are complete, relevant, accurate, timely and useful.
- Information reported is used to evaluate performance in relation to strategic objectives and outcomes.
- Public reports are complete, relevant, timely and useful.

### 2.10.1 C&E Performance Review

The objectives of C&E are stated in the Inspection and Compliance Management Systems section of the Inspection and Compliance Operations Manual. There are 11 specific purposes stated. These purposes of C&E support the purposes of the Commission stated in the 2009/10 to 2011/12 service plan: 3(a) (i) – provides for the sound development of the oil and gas sector by fostering a healthy environment, a sound economy and social well-being; and 3(a) (iii) – ensures safe and efficient practices.

The 11 purposes of C&E are clear, and our brief review in general found them reflected in C&E approaches. It might be worth formulating a higher

level statement of the purpose for C&E that is framed around public safety, environmental protection and regulatory compliance. And, one might expect a measure and potentially a plan addressing each of the 11 stated purposes.

There are two stated measures for C&E, with targets, in the Service Plan:

1. industry compliance rate – 95 percent and increasing over time; and
2. completion of the top 1000 high risk inspections.

And a third measure, all sites inspected within five years, is used internally within the C&E function.

Mechanisms are in place for the ongoing assessment of the performance of the C&E function. The C&E function has annual and quarterly plans, which are compared to actual results. Within the C&E group, supervisors review inspector performance in relation to individual weekly plans and annual plans.

The monthly Compliance and Enforcement Management Report presents the number of inspections by category (activity), incidents by level, complaints by type, information on the number of inspections and deficiencies by inspector, and deficiency correction times. The report is regularly reviewed with senior management.

Internally, the main focus has been on the number of inspections. First is the need to complete inspections of the top 1000. This is important because it is the official risk-based selection, and this is monitored monthly by the director and supervisors. In addition, an exercise has been underway to ensure that sites not inspected for a number of years receive an inspection. We understand that this has been completed for sites not inspected between 5 and 10 years, and that mapping is now underway for those sites not inspected within the last 5 years.

C&E monitors adherence to the top 1000, but there are few other targets. The plan does not establish expectations or measures for the remaining 3000 or so inspections. There are also no measures for the number of inspections completed by each inspector. In the April to October 2010 period, two of ten inspectors did 43 percent of the inspections. Large variations in the number of inspections conducted are possible, given the distances involved in some zones, and such factors as leave, but such large variations require explanation. In our view, one way to do this would be to estimate an expected number of inspections per zone per month, based on volume, risk and distance.

The number of inspections is a very basic measure, as it cannot be related to the oversight needs in each activity. There is a need for much more analysis of the adequacy of inspection coverage based on need. Once need has been identified through a risk assessment process in each activity, then inspection plans can be built for each activity. Understanding the inspection coverage of each permit holder in each activity will enable assessment of inspection results to be conducted with confidence that enough coverage has been obtained to understand the practices employed.

## 2.10.2 Permit Holder Performance Information

There is also major variation in the number of deficiencies identified by inspectors. The percentages of inspections without deficiencies for each inspector for the 10 months ending January 31, 2010, were in a range of 24 to 94 percent, with an average of 52 percent. For the eight months to November 2010, the range was 44 to 95 percent, with an average of 72 percent. In each period, the differences in deficiency identification are so large as to demand explanation, and the movement in the average would also seem to require analysis and explanation. There is a need for more analysis of the results of inspections, such as in this example where the question of inconsistent deficiency identification is clouding the analysis of permit holder performance.

The C&E function has conducted a joint inspection program with a number of major operators, starting in 2008-09. This program was aimed in part at operators with performance issues; it assisted in operators' understanding of C&E's expectations and we understand that it resulted in improvements in the initial rate of compliance. This type of program has also laid some of the groundwork for the introduction of audits.

One of the major themes in C&E literature is the integration of compliance information to better understand patterns of non-compliance. Many organizations suffer from a lack of structure for doing this, and the OGC is no exception. The OGC has many business areas that check compliance, but the systems operate in isolation. Ensuring information is assembled is a good start, and the structures and rules for using the information can be developed over time. In our view, compliance information would become a corporate resource, enabling analysis and identification of trends based on comprehensive performance information.

Therefore, in order to support the consideration of enforcement action or other compliance tools, there is a need to capture permit holder performance information in all activities in all business areas. This would include the results of inspections, monitoring, audits and any overview activity that assesses compliance. This involves defining, measuring, recording and reporting on permit holder performance in all business areas.

It is worth noting here that permit holder performance is currently measured using the 'remedied' rate of compliance, which as we have indicated, places the emphasis in fixing rather than preventing deficiencies, and we have noted our view that the focus should move to the initial rate of compliance.

### *We recommend that the OGC:*

- *Redevelop performance measures for C&E, by adding measures addressing the risk-based needs in each (group of) oil and gas activities.*
- *Conduct analysis on an ongoing basis to confirm or vary the extent of inspections or other compliance tools required in each activity.*
- *Manage the number of inspections completed through use of an expected number of inspections per zone, based on volume, risk and distance.*
- *Conduct analysis to better understand inspection results, such as the wide range in identified non-compliance.*

- *Continue the program of joint inspections as a tool in communication of expectations and introduction to the audit process.*
- *Integrate compliance information to better understand patterns of non-compliance, through treating compliance information as a corporate resource.*

### 2.10.3 New IT Systems Needs

Although this was not the focus of our work, through our various interviews and tests, we were made aware of a number of areas in which there was need for more systems support. Examples included:

- The need for more inspection categories for the additional environmental and other activities now more formally subject to inspection, and analysis capability.
- Incidents and complaints, for which there is no analysis capability.
- Pipeline inspections by Engineering were being managed manually through a day-book, as not all inspections could be recorded.
- Emergency Management, where Emergency Response Plans, monitoring and site visits were being managed using excel spreadsheets.
- Investigations, where case file information was maintained in excel spreadsheets, and analysis for the annual report was assembled manually.

Also, in conducting our transaction tests and analysis, we found that some of the analysis was not easy to perform and the Kermit system was at times cumbersome.

Under OGAA, there will be a need for considerable systems support. Management is aware of this need, and a recommendation here would be redundant.

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