

**ASSOCIATION OF CANADA LANDS SURVEYORS  
BOARD OF EXAMINERS**

**P1 - ACTS AND REGULATIONS  
RELATING TO SURVEYS OF CANADA LANDS**

**March 2012**

**Notice to Candidates:**

**This examination is based on the *General Instructions for Surveys, e-Edition (GIS-e)***

This examination consists of 11 questions on 7 pages and two copies each of Sketches 1 and 2.

**Marks**

**Q. No**

**Time: 3 hours**

**Value   Earned**

1.	<p>The Yukon has experienced a number of "staking rushes" in recent years a result of record-high base and precious metal prices. Targeted government geoscience programs and advances in technology have also driven quartz claim staking, often by inexperienced persons, and have put unprecedented workloads on mineral administration officials. Claims are often staked /located, for speculative reasons, recorded and allowed to lapse after one year when annual assessment work must be filed or payment made in lieu of physical work on a claim block of grouped claims.</p> <p>Sketch 1 attached shows to scale an array of legal posts found at their original sites. The A claims were located by locator A, the B claims by locator B and the C claim by locator C. All of the claims represented and defined by these posts were staked in compliance with the <i>Quartz Mining Act (Yukon)</i>, notwithstanding that each locator was not completely certain of exactly where on the map sheet he was locating, and notwithstanding that each of the latter two in their haste failed to notice evidence of earlier staking(s) over much the same ground. These errors in this particular situation clearly fall within the safety of the "savings clause" in that the actions of lack thereof were "... not of a character calculated to mislead other persons desiring to locate claims in the vicinity".</p> <p>The C claim was the only claim in the area in good standing in the summer of 2011. The recorded holder of the claim, also its locator, is offered a sizeable option payment and a royalty return should promising preliminary geological results be confirmed by a trenching program and diamond drilling. The option agreement is conditional on having the claim surveyed by a Canada Lands Surveyor.</p> <p>After extensive retrieval of records of all earlier staking in the area that might affect the C claim, the CLS engaged for the work is able to find and determine the legal post positions by a combination of GPS observations and conventional traverse ties.</p> <p>The mining recorder's records provide the following relevant information:</p> <table style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="text-align: left;">Claim Name</th> <th style="text-align: left;">Location Date/Time</th> <th style="text-align: left;">Recording Date</th> <th style="text-align: left;">Loc. Line Direction</th> <th style="text-align: left;">Loc. Line Length (ft)</th> <th style="text-align: left;">Distance/Direction from Loc. Line</th> <th style="text-align: left;">Lapse Date</th> </tr> </thead> <tbody> <tr> <td>A1</td> <td>Apr. 4/06 10:05 am</td> <td>Apr. 10/06</td> <td>N</td> <td>1,500</td> <td>1,500' L</td> <td>Apr. 10/07</td> </tr> <tr> <td>A2</td> <td>Apr. 4/06 10:10 am</td> <td>Apr. 10/06</td> <td>N</td> <td>1,500</td> <td>1,500' R</td> <td>Apr. 10/07</td> </tr> <tr> <td>A3</td> <td>Apr. 4/06 12:15 pm</td> <td>Apr. 10/06</td> <td>N</td> <td>1,500</td> <td>1,500' L</td> <td>Apr. 10/07</td> </tr> <tr> <td>A4</td> <td>Apr. 4/06 12:25 pm</td> <td>Apr. 10/06</td> <td>N</td> <td>1,500</td> <td>1,500' R</td> <td>Apr. 10/07</td> </tr> </tbody> </table>	Claim Name	Location Date/Time	Recording Date	Loc. Line Direction	Loc. Line Length (ft)	Distance/Direction from Loc. Line	Lapse Date	A1	Apr. 4/06 10:05 am	Apr. 10/06	N	1,500	1,500' L	Apr. 10/07	A2	Apr. 4/06 10:10 am	Apr. 10/06	N	1,500	1,500' R	Apr. 10/07	A3	Apr. 4/06 12:15 pm	Apr. 10/06	N	1,500	1,500' L	Apr. 10/07	A4	Apr. 4/06 12:25 pm	Apr. 10/06	N	1,500	1,500' R	Apr. 10/07		
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B1	Mar. 27/07 10:05 am	Apr. 11/07	N	1,500	1,500' L	Apr. 11/09
B2	Mar. 27/07 10:15 am	Apr. 11/07	N	1,500	1,500' R	Apr. 11/09
B3	Mar. 27/07 1:00 pm	Apr. 11/07	N	1,500	1,500' L	Apr. 11/09
B4	Mar. 27/07 1:15 pm	Apr. 11/07	N	1,500	1,500' R	Apr. 11/09
C	Apr. 6/09 6:45 pm	Apr. 21/09	E	1,500	750' L, 750' R	-

Her relevant findings from the field survey of the location lines are summarized in the following table:

Post Site	LP(s) Found	Location Line Direction and Length
A	No. 1 LPs A1 & A2	
B	No. 2 LPs A1 & A2 No. 1 LPs A3 & A4	348° 06' 20" 1,490.6' A to B
C	No. 2 LPs A3 & A4	14° 06' 50" 1,702.5' B to C
D	No. 1 LPs B1 & B2	
E	No. 2 LPs B1 & B2 No. 1 LPs B3 & B4 No. 1 LP C	10° 23' 00" 1,494.0' D to E
F	No. 2 LPs B3 & B4	340° 12' 50" 1,479.6' E to F
G	No. 2 LP C	92° 12' 00" 1,758.6' E to G

Two copies of Sketch 1 have been provided. One may be used for preliminary work. One must be submitted with your examination answer pages. No geometric calculation is necessary to answer the question.

a) Determine and NEATLY indicate the extent of the C claim as surveyed in the summer of 2011. Outline its boundaries in a distinct colour. Feel free to summarize your reasoning in point form. 15

b) Indicate by solid dark circles the places at which CLS monuments would be placed in the course of the full legal survey of the C claim. 3

c) Using assumed details, provide the title for the resulting Plan and Field Notes. 3

2. Sketch 2 attached shows a portion of the surveyed base line of Little Gold Creek in the Klondike mining district. A Dominion Land Surveyor made the original survey of the base line in 1903; a Canada Lands Surveyor made a resurvey of this and adjoining sections of the base line in 1989. The resurvey miraculously recovered the original wooden post butts, frozen into and preserved by the permafrost, at almost every base line angle. The creek baseline was opened up by the 1989 resurvey traverse but has grown over with dense willow vegetation in the 20 years since. In 2010, promising churn drill results on a lease to prospect lower down on the creek

sparked a staking rush in upper reaches of the creek which had not seen claims in good standing for about 70 years. The Government of Yukon claims inspector made an inspection trip into the area at the request of the mining recorder to report on the quality of the staking and compliance with the *Placer Mining Act (Yukon)*.

The claims inspector was competent in the use of a hand-held GPS unit and determined the coordinates of the various legal posts from the recent staking. He also recorded and took photographs of the location lines between the posts placed for each claim and noted that they had also been flagged by the locator. With the confirmed Plan and Field Notes of Resurvey in hand, he was able to find and occupy three of the base line angles restored with CLS 77 monuments.

After compiling the results of his GPS observations and other measurements, he reviewed his findings with the mining recorder and they concluded that the recent claims located by various parties in the area were in compliance with the *YPMA*. The mining recorder issued grants for the claims.

Sketch 2 shows the position of the legal posts for the various claims examined, the base line monuments occupied and the present watercourse of Little Gold Creek in the area. The legal post information at each location and information from the mining recorder's records is summarized in the following table:

Post Site	Claim Name	Legal Post	Direction Claimed	Length Claimed	Location Date	Claim Type Applied for and Granted
a	BUD	1	Upstream	500'	Jun. 12/10	Tier 2 Left Limit Bench claim
b	BUD	2			Jun. 12/10	
c	CAT	1	Upstream	500'	Jun. 11/10	Creek claim
d	CAT	2			Jun. 11/10	
	LOU	1	Upstream	500'	Jun.12/10	Creek claim
e	LOU	2			Jun. 13/10	
	PAYIT	1	Upstream	500'	Jun. 13/10	Creek claim
f	PAYIT	2			Jun. 13/10	
	DON	1	Upstream	500'	Jun. 13/10	Creek claim
g	DON	2			Jun. 14/10	
	LUCKY	1	Upstream	500'	Jun. 14/10	Creek claim
h	LUCKY	2			Jun. 15/10	
	FRED	1	Upstream	500'	Jun. 15/10	Creek claim
i	FRED	2			Jun.15/10	
	TAC	1	Upstream	500'	Jun. 16/10	Creek claim
j	TAC	2			Jun. 16/10	
	ACT	1	Upstream	500'	Jun. 16/10	Creek claim
k	ACT	2			Jun. 16/10	

	Post Site	Claim Name	Legal Post	Direction Claimed	Length Claimed	Location Date	Claim Type Applied for and Granted			
	1	WENDY	1	Upstream	500'	Jun. 19/10	Tier 2 Right Limit Bench claim			
	m	WENDY	2			Jun. 20/10				
	<p>Two copies of Sketch 2 have been provided. One may be used for preliminary work. One must be submitted with your examination answer pages. No geometric calculation is necessary to answer the question.</p>									
	<p>a) Determine and NEATLY indicate the extent of the 9 placer mining claims you have determined on your sketch as you would survey them in a full legal survey in 2011.</p>								14	
	<p>b) How many locators were involved in the location of these nine claims? Explain your reasoning.</p>								2	
	<p>c) The current owners of the 9 claims wish to group them and mine them on a joint partnership basis. What requirements do they have to meet in order to have such an application approved by the mining recorder?</p>								2	
	<p>d) Is there any particular action you might recommend to or take on behalf of your clients' partnership with respect to these claims? Explain your reasoning.</p>								2	
3.	<p>a) The <i>Weights and Measures Act</i> prescribes the basis on which all units of measurement used in Canada shall be determined. What is that basis?</p>								2	
	<p>b) Schedule I to the <i>Weights and Measures Act</i> prescribes the units of measurement to be used for three categories regularly used by surveyors: length, time and plane angle. Name the basic unit of measurement prescribed for each of these.</p>								2	
4.	<p>a) To whom must an absolute surrender of lands in a reserve pursuant to the <i>Indian Act</i> be made?</p>								2	
	<p>b) Who must authorize surveys of reserves and the preparation of plans and reports with respect thereto?</p>								2	
5.	<p>a) Pursuant to the <i>Land Titles Act (Yukon)</i> what officer may require the owner of any land in the registration district who wishes to transfer or otherwise deal with the land under that Act, to provide a dimensioned map or plan of the land certified by a Canada Lands Surveyor?</p>								2	
	<p>b) Who has the authority to cancel in whole or in part, or amend a plan of survey registered in the Northwest Territories Land Titles Office?</p>								2	
6.	<p>The McCrae Industrial Subdivision in the City of Whitehorse straddles the 135° meridian of west Longitude. The area is generally level at approximately 700 metres elevation ASL resulting in an elevation scale factor of 0.998902.</p>									
	<p>a) For horizontal distances measured in legal surveys in this area, what is the Combined Scale Factor to be applied to them for the computation of UTM coordinates?</p>								4	
	<p>b) Explain the (t-T) formula as it applies to UTM coordinate computations.</p>								3	

7.	<p>In 1955, Chicago adman Bruce Baker, working for the Quaker Oats Company</p> <p>".... needed a new idea. Or else he would need a new job. He had to think of something catchy and simple and it had to do with the cereal's radio show about a Mountie in the Yukon. Suddenly, the man knew!</p> <p>"In each box of Puffed Rice and Puffed Wheat he would give away a square inch of land in the romantic Yukon right here in Dawson where Sergeant Preston and his trusty dog King had their adventures every week.</p> <p>"And so began the Great Klondike Big Inch land Caper, one of the most successful sales promotions in North American business history.</p> <p>"When the inspiration came to him, he could almost see the ads: "You'll actually own one square inch of Yukon land in the famous gold country!" Quaker Oats hated the idea."</p> <p>Baker, with the assistance of a Whitehorse lawyer, the late Sen. George C. Van Roggen, purchased Lot 243, Group 2, West Dawson, Yukon Territory. A certificate of title was issued in the company's name.</p> <p>"Twenty-one million numbered deeds were printed up. And on Jan. 27, 1955, the promotion was begun on the Sergeant Preston radio show.</p> <p>"The response was far beyond Baker's wildest hopes. Quaker's puffed cereal plant in Cedar Rapids, Iowa, could hardly stuff the deeds in fast enough. Within weeks, every box was sold.</p> <p>"Too many potential legal problems, the lawyers said. It would cost far too much to register every deed to every little cereal-eater out there. Baker suggested, then, that they not register the deeds."</p> <p>"In 1965, the 19.11 acres were seized. In 1966, the Klondike Big Inch Land Co. was dissolved. There were always some "owners" writing for information. But it built to a flood more recently, involving Canadian consuls general in the United States, the Yukon and even the prime minister's office in Ottawa."</p> <p>[Source: <a href="http://www.yukoninfo.com/klondikebiginch.htm">http://www.yukoninfo.com/klondikebiginch.htm</a>]</p> <p>Quite unrelated but applicable, the Government of Yukon (YTG) amended its <i>Assessment and Taxation Act</i> in 2002 to establish a minimum \$100.00 property tax for any parcel of land.</p> <p>You are a Canada Lands Surveyor practicing in Whitehorse in 2010. You are engaged by YTG to draft a form letter that can be used to respond to the "flood" of inquiries being received about these deeds by its Land Titles Office and the Lands Office. They are no doubt in part prompted by rising gold prices.</p> <p>Compose a brief letter that is intended to discourage any further dialogue but provide enough information to constitute a polite and respectful reply from YTG.</p>	8	
8.	<p>The <i>Canada Lands Surveyors Act</i> provides for a Discipline Committee to be established.</p> <p>a) List the main responsibilities of the committee.</p> <p>b) What condition must be met for complaints referred to it?</p>	2 2	

9.	<p>Define each of the following terms as they are used or provided for in the <i>GIS-e</i>:</p> <ul style="list-style-type: none"> <li>a) lost monument</li> <li>b) oblit.</li> <li>c) bed</li> <li>d) vista</li> <li>e) surveyor</li> <li>f) (c)</li> <li>g) FNE</li> <li>h) NHS</li> <li>i) Wt.</li> <li>j) c.</li> </ul>	10	
10.	<ul style="list-style-type: none"> <li>a) Who is responsible for the administration, management and control of National parks, including the administration of public lands in National parks?</li> <li>b) Who has the responsibility for regulating, among others, the surveying and subdivision of public lands in National Parks?</li> </ul>	2 2	
11.	<p>You are a Canada Lands Surveyor, Saskatchewan Land Surveyor and Alberta Land Surveyor in private practice in Lac La Ronge SK. Your firm has a solid reputation for high quality legal surveys, construction and layout surveys and precise control surveys. The Intercontinental Chemical Corporation is about to commence production of sodium chloride in a new processing plant located on the Black Lake Denesuline First Nation Reserve No. 2 in Black Lake SK. The First Nation is a financial partner in the development that will also employ upwards of forty First Nation members in its mining and milling operations.</p> <p>The approvals and permits for the project are all in place. The company engages your firm for determination of production quantities at the end of the third last day of each month. Your numerical result, expressed in cubic metres of product, must be provided to the company's Mill Manager by 2:00 pm on the second last day of each month and will be used for production and inventory confirmation and production bonus payments to employees on the last day of each month.</p> <p>The production will be stored in a large reinforced concrete building and fed into the building by two fixed conveyors. The building plans show it to have inside dimensions of 100.0 feet east-west, 60.0 feet north-south and 60.0 feet in height. The building is well illuminated by overhead industrial lighting fixtures. The two fixed conveyor feeds are on the east-west centerline and discharge 30.0 feet east of the west wall and 30.0 feet west of the east wall. The discharge points for both feeds are 50.0 feet above the floor. There is a mechanized overhead rolling bridge above the conveyor feed level that provides access to the exposed perimeter walls and any point within the building that is not occupied by product. There is an auger system that will deliver the production from the storage room to trucks for shipping and there is a vehicle access door for annual inspections and maintenance. The door may not always be available because of material piled against it. The design production rate is such that the top of the cones will not exceed 46.0 feet above the floor. The material has an average angle of repose that varies with moisture content but is on average 44° above the horizontal plane.</p> <p>The plant will operate 24/7 but there will be a maintenance shift every night from 12:00 am to 12:30 am when the conveyors will not be discharging. Your field staff will have this window of time to take necessary measurements on the prescribed day each month.</p> <p>A training session is arranged for you and your field staff for safety and emergency procedures and for operation of the overhead rolling bridge. You are provided access to the</p>		

	<p>empty building for the next twenty days for any necessary verification of dimensions and other control necessary to carry out your assignment.</p> <p>a) The Mill Manager asks you to provide him with a point-form summary of your proposed pre-production survey work and the field and office work that will follow at monthly intervals. He will be distributing it to his colleagues on the Commissioning Team at its next meeting. Write the summary that you will provide.</p> <p>b) Do you bring any special legal qualifications to this work as compared to what a professional engineer or quantity surveyor might bring? Provide your reasoning.</p> <p>c) While the recurring monthly field work will be limited to one-half hour plus travel time, and the recurring office work limited to approximately one day, the work affects a component of a multi-million dollar annual payroll and involves considerable production revenues. What options will you consider for establishing your monthly billing for fees, labour and expenses?</p> <p>d) What precautionary action should you take prior to commencing this work?</p>	<p>7</p> <p>2</p> <p>3</p> <p>2</p>	
	<p><b>Total Marks:</b></p>	<p>100</p>	