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# NORTHWEST TERRITORIES WATER BOARD

WATER LICENCE APPLICATION QUESTIONNAIRE

FOR

OIL AND GAS EXPLORATION: DRILLING



prepared by

Department of Indian Affairs and Northern Development  
 Water Resources Division  
 August 2002

## **INTRODUCTION**

The purpose of this questionnaire is to solicit supplemental information from an applicant to support their application for a Water Licence (or renewal). It is anticipated that the completion of this questionnaire will reduce delays arising from the Northwest Territories Water Board having to solicit additional information after an application has been submitted. This information will be used during the environmental assessment and screening of your application, which must be undertaken prior to the approval of a Water Licence.

The applicant should complete the questionnaire to the best of their ability, recognizing that some questions may not be relevant to the proposed project. For questions that do not relate to the operation, the applicant is requested to indicate "N/A" (not applicable). For information from other sources, please fully reference the material cited, including the title of the document and the page numbers referred to.

If any questions arise while completing the questionnaire, the applicant may wish to contact the Northwest Territories Water Board at (867) 669-2772. If your question is of a technical nature, please contact the Policy and Assessment Section of the Water Resources Division, Department of Indian Affairs and Northern Development (DIAND) at (867) 669-2658.

Chairman  
Northwest Territories Water Board

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**SECTION 1: APPLICANT INFORMATION**

**1.1 Applicant:** MGM Energy Corp.  

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**Address:** 4700 Bankers Hall West, 888-3<sup>rd</sup> Street S.W.  

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Calgary, AB T2P 5C5  

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Canada  

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**1.2 Project Name:** MGM Energy Corp. Ellice, Langley, and Olivier Drilling, Completion and Testing Project: Winters 2007-2008, 2008-2009, and 2009-2010  

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**Property Name:** \_\_\_\_\_  
**Exploration Licence Number:** EL 427 and EL394  

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**Closest Community (s):** Tuktoyaktuk  

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**Min/Max Latitude of Project Area:** 68°52'N / 69°24'N  

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**Min/Max Longitude of Project Area:** 136°8'W / 134°22'W  

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**1.3 Primary Company Contact:** Shirley Maaskant  

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**Title:** Manager, Regulatory and Community Affairs  

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**Contact Number:** 403-290-3600  

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**Alternate Contact Numbers:** 403-290-3618  

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**Fax:** 403-264-9206  

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**1.4 Field Contact:** To be determined  

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**Title:** \_\_\_\_\_  

---

**Contact Number:** \_\_\_\_\_  

---

**Alternate Contact Numbers:** \_\_\_\_\_  

---

**Fax:** \_\_\_\_\_  

---

\* Based on the project extents, including access requirements

**1.5 List the contractors (ie. Major, sewage, water) that will be involved in the project:**

**Company Name:** \_\_\_\_\_ To be determined \_\_\_\_\_

**Primary Contact:** \_\_\_\_\_

**Title:** \_\_\_\_\_

**Contact Number:** \_\_\_\_\_

**Alternate Contact Numbers:** \_\_\_\_\_

**Fax:** \_\_\_\_\_

**Company Name:** \_\_\_\_\_

**Primary Contact:** \_\_\_\_\_

**Title:** \_\_\_\_\_

**Contact Number:** \_\_\_\_\_

**Alternate Contact Numbers:** \_\_\_\_\_

**Fax:** \_\_\_\_\_

**Company Name:** \_\_\_\_\_ Others yet to be determined \_\_\_\_\_

**1.6 List all other permits or authorizations applied for:**

\_\_\_\_\_ An Approval from the Environmental Impact Screening Committee (EISC) \_\_\_\_\_

\_\_\_\_\_ Class A Land Use Permit from Indian and Northern Affairs Canada (INAC) \_\_\_\_\_

\_\_\_\_\_ An Authorization to Drill a Well, from the National Energy Board (NEB) \_\_\_\_\_

\_\_\_\_\_ Authorization for Waste Water/Sewage Disposal (Town of Inuvik) \_\_\_\_\_

\_\_\_\_\_ A Highway Access Permit from the Department of Transportation (DOT) \_\_\_\_\_

\_\_\_\_\_ A Permit to Conduct Activities in a Migratory Bird Sanctuary from Canadian Wildlife Services (CWS) \_\_\_\_\_

\_\_\_\_\_ Canada Benefits Plan from Indian and Northern Affairs Canada (INAC) \_\_\_\_\_

## **SECTION 2: PRE-SITE ASSESSMENT**

- 2.1 Please complete the following chart for those items that currently exist in the project area - a snapshot of the area before your project commences. Attach a map depicting all of the indicated items in the project area, as well as the surface drainage patterns and elevation contours.**

Please, see the enclosed MGM Energy Corp. Ellice, Langley, and Olivier Drilling, Completion and Testing Project: Winters 2007-2008, 2008-2009, and 2009-2010 Project Description (hereafter referred to as the "Project Description") for detailed site assessment. Figure 4-1 of the Project Description provides an overview of the Project area.

**SECTION 2: PRE-SITE ASSESSMENT** (Continued from previous page)

A. Areas under consideration for well sites (centered on 5 km. circle) as per PD

		Description																			
Yes <input checked="" type="checkbox"/>	latitude:	<table border="1"> <tr><td>69°16'50"N</td></tr> <tr><td>69°13'16"N</td></tr> <tr><td>69°11'48"N</td></tr> <tr><td>69°19'30"N</td></tr> <tr><td>69°6'30"N</td></tr> <tr><td>68°58'23"N</td></tr> <tr><td>69°11'8"N</td></tr> <tr><td>69°1'2"N</td></tr> <tr><td>69°15'55"N</td></tr> </table>	69°16'50"N	69°13'16"N	69°11'48"N	69°19'30"N	69°6'30"N	68°58'23"N	69°11'8"N	69°1'2"N	69°15'55"N	<table border="1"> <tr><td>West Langley</td></tr> <tr><td>East Unipkat</td></tr> <tr><td>Arvoknar</td></tr> <tr><td>North Langley</td></tr> <tr><td>Southeast Ellice</td></tr> <tr><td>Atik</td></tr> <tr><td>West Olivier</td></tr> <tr><td>Aput</td></tr> <tr><td>South Langley</td></tr> </table>	West Langley	East Unipkat	Arvoknar	North Langley	Southeast Ellice	Atik	West Olivier	Aput	South Langley
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No <input type="checkbox"/>	longitude:	<table border="1"> <tr><td>135°49'48"W</td></tr> <tr><td>135°19'56"W</td></tr> <tr><td>135°31'44"W</td></tr> <tr><td>135°40'55"W</td></tr> <tr><td>135°49'32"W</td></tr> <tr><td>135°32'32"W</td></tr> <tr><td>136°6'56"W</td></tr> <tr><td>135°41'58"W</td></tr> <tr><td>135°31'28"W</td></tr> </table>	135°49'48"W	135°19'56"W	135°31'44"W	135°40'55"W	135°49'32"W	135°32'32"W	136°6'56"W	135°41'58"W	135°31'28"W	<table border="1"> <tr><td>West Langley</td></tr> <tr><td>East Unipkat</td></tr> <tr><td>Arvoknar</td></tr> <tr><td>North Langley</td></tr> <tr><td>Southeast Ellice</td></tr> <tr><td>Atik</td></tr> <tr><td>West Olivier</td></tr> <tr><td>Aput</td></tr> <tr><td>South Langley</td></tr> </table>	West Langley	East Unipkat	Arvoknar	North Langley	Southeast Ellice	Atik	West Olivier	Aput	South Langley
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Arvoknar																					
North Langley																					
Southeast Ellice																					
Atik																					
West Olivier																					
Aput																					
South Langley																					
B. waste dumps	Yes <input type="checkbox"/>	latitude:																			
	No <input checked="" type="checkbox"/>	longitude:																			

C. fuel and chemical storage areas

Yes

latitude: see wellsite and staging locations.

There is no current fuel and chemical storage at the MGM proposed sites. MGMs proposal is that fuel will be stored at each wellsite in Envirotanks (15,000 or 30,000 L). Project fuel will be brought in and stored on double-hulled barges or in single-hulled barges with fuel in the inner cells only.

No

longitude:

D. sump areas

Yes

latitude:

No

longitude:

E. wastewater discharge locations

Yes

latitude:

No

longitude:

F. camps

Yes

latitude: see wellsites

There are no camps on the proposed MGM sites. MGM's proposal includes drill camps to be located immediately adjacent to the drill site and will consist of a 20-25 unit side-by-side complex that can accommodate 65-75 people with additional beds available for emergency use. Once drilling is complete, a completions and testing camp will be moved onto the rig camp footprint and consists of a side-by-side camp that will hold approximately 26 people.

Construction camp: Likely that the camp will be located first at the barge landing site to commence ice road construction to the first wellsite. The construction camp may be moved from one wellsite to the next as the ice pads and ice roads are completed. In subsequent operating years, the construction camp could be located at either the staging site (Camp Farewell, Swimming Point or Lucas Point) or at a potential barge landing site.

No

longitude:



G. transportation routes

<p>Yes <input checked="" type="checkbox"/></p>	<p>latitude:</p>	<p>Ice roads will be constructed over frozen channels where ever possible and will be constructed overland to access wellsites with the most direct route possible. Vehicle traffic will use the Inuvik-Tuktoyaktuk ice road to Tununuk Point and access the project area by ice roads constructed along the routes shown on Figure 4-2 (see attached Project Description). Overland access routes are currently not outlined on the maps as they will be defined after biophysical assessments for MGM's Summer Project have been completed.</p>
<p>No <input type="checkbox"/></p>	<p>longitude:</p>	
<p>Yes <input type="checkbox"/></p>	<p>latitude:</p>	<p>None identified</p>
<p>No <input checked="" type="checkbox"/></p>	<p>longitude:</p>	
<p>Yes <input checked="" type="checkbox"/></p>	<p>latitude:            North Ellice:            Arvoknar:            Atik:            Camp Farewell:            Lucas Point:            Swimming Point:</p>	<p>MGM is considering options for staging and mobilization:</p> <ul style="list-style-type: none"> <li>• advance staging of equipment and fuel on barges and freezing in at barge landing sites</li> <li>• off-loading of equipment at existing on-land staging sites at either Camp Farewell, Lucas Point or Swimming Point</li> </ul>

H. pingos

I. staging areas

	No	<input type="checkbox"/>	longitude: North Ellice: Arvoknar: Atik: Camp Farewell: Lucas Point: Swimming Point:	
J. seismic lines	Yes	<input type="checkbox"/>	latitude:	Several previous programs by several companies.
	No	<input checked="" type="checkbox"/>	longitude:	
K. parks and/or protected areas	Yes	<input type="checkbox"/>	latitude:	
	No	<input checked="" type="checkbox"/>	longitude:	
L. wildlife management areas	Yes	<input checked="" type="checkbox"/>	latitude:	See Table 9 -1 of Section 9 of the Project Description.
	No	<input type="checkbox"/>	longitude:	
M. bird sanctuaries	Yes	<input checked="" type="checkbox"/>	latitude:	Camp Farewell is located within the Kendall Island Bird Sanctuary (KIBS).
	No	<input type="checkbox"/>	longitude	
N. trap lines	Yes	<input type="checkbox"/>	latitude:	
	No	<input checked="" type="checkbox"/>	longitude	
O. other	Yes	<input type="checkbox"/>	latitude:	
	No	<input checked="" type="checkbox"/>	longitude:	

## SECTION 3: WATER USE AND WASTE DISPOSAL

### 3.1 Water Use

<b>Maximum quantity per day (m<sup>3</sup>):</b>	7000 m <sup>3</sup> This water volume assumes a 4-6 well scenario with two construction crews, two drilling rigs and camps and one service rig. Most likely significantly less.
<b>Total quantity for project (m<sup>3</sup>):</b>	Dependent on Weather (eg amount of water required to maintain ice roads)
<b>Planned uses of water:</b>	Ice road/pad construction; construction camp; drilling camp; drilling operations; completion/testing; service camp
<b>Operating capacity of the pump:</b>	To be determined
<b>Size of intake screen:</b>	All water intakes will be screened according to <i>DFO Guideline</i> (DFO 1995) to prevent the entrainment of fish
<b>Source of potable water:</b>	Water withdrawals from Mackenzie River channels will be required for the construction of ice roads, ice pads, camp use and make-up water for the drilling, completion and testing operations. Potable water will be treated onsite, or supplied from the Town of Inuvik for domestic use in the camp(s). Bottled water may also be provided for consumption purposes.

#### 3.1.2 Please provide information for each water source as required by the Department of Fisheries and Oceans: "Protocol for Water Withdrawal for Oil & Gas Activities in the Northwest Territories".

Water withdrawals from Mackenzie River channels will be required for the construction of ice roads, ice pads, camp use and make-up water for the drilling, completion and testing operations. Fish screens meeting Department of Fisheries and Oceans Canada (DFO) guidelines (DFO 1995) will be used on all suction hoses. Potable water will be treated on site, or supplied from the Town of Inuvik for domestic use in the camp(s). Bottled water may also be provided for consumption purposes.

Please, see Section 5.4.5.6 of the attached Project Description for details.

### 3.2 Waste Disposal

3.2.1 Will a camp(s) be provided? Yes  No

**If yes, indicate the maximum number of people that will be accommodated**

Capacity:

A drilling camp typically consists of a 20-25 unit side-by-side complex that can accommodate 65-75 people with additional beds available for emergency use. Once drilling is complete, the completions and testing camp (if available) will move onto the rig camp footprint. The completions and testing camp (service rig camp) may consist of a side-by-side camp that will hold approximately 26 people.

Maximum Accommodated:

See above

**3.2.2 Will the camp remain in one place for the duration of the project, or move around? Please describe the camp type (e.g. sleigh camp) and attach diagrams of the proposed layout.**

Up to 60 personnel may be required for the initial construction phase of the Project. Personnel may be accommodated at various locations, depending on the order of the wells drilled, whether barges will be utilized, and whether a permanent camp location is available. It is likely that the construction crew will be located first at the barge landing site to commence ice road construction to the first wellsite. The construction camp may be moved from one wellsite location to the next as the ice pads and ice roads are completed. Where more than one well is being initiated at the same time, a second crew would likely be required. In subsequent operating years, the construction camp could be located at either the staging site (Camp Farewell, Swimming Point or Lucas Point) or at a potential barge landing site.

A drilling camp typically consists of a 20-25 unit side-by-side complex that can accommodate 65-75 people with additional beds available for emergency use. Once drilling is complete, the completions and testing camp (if available) will move onto the rig camp footprint. The completions and testing camp (service rig camp) may consist of a side-by-side camp that will hold approximately 26 people.

**3.2.3 What is the proposed method of sewage and greywater treatment/ disposal?**

It is expected that wastewater at the camps will be treated using a membrane filtration wastewater system and/or incinolet toilets(if supplied with the camp).

**Please describe the treatment process.**

Sewage is collected in above ground transfer stations and moved into a holding tank. There it is pumped to the treatment system and settling occurs in Primary Settling Tank #1. Oxygen is injected to this tank to begin the aeration process and eliminate any odours from the effluent. The sewage then runs to Settling Tank #2 where grease and most all solids separate. Gravity allows effluent flow from tank #2 through a fine screen to the flow equalization tank. Floats monitor the fluid level in this tank and a pump moves the fluid to the Anoxic tank. It is here where the aeration process is performed and the BOD5 is reduced to as little as possible. Floats again monitor the level of this tank, and it is finally pumped to the membrane tank.

The membrane tank is where the final touches are put on the discharged effluent. In this tank the TSS is built up between 10,000 & 20,000mg/l. This thick "chocolate shake" looking liquor contains the bacteria and all Coli-forms from the sewage and treatment process. The bacteria are moved back into the Anoxic tank to continue consuming the sewage. The membrane which is best compared to a Reverse Osmosis filter is fine enough to remove virtually all suspended solids, Fecal & Total Coli-forms, and some discoloration.

This process is done by means of a vacuum pump sucking the effluent through the membrane. Turbulent air is pumped across the bottom of the membrane which eliminates any plugging off of the pores on the surface.

When the effluent is being discharged it travels through a flow totalizer and volumes are sent back to the PLC (Pro-logic Controller) to continue calculating daily flow. The PLC organizes and monitors all pump & compressor running times.

**What is the maximum capacity per day (in m<sup>3</sup> and people) of the treatment system?**

The camp and associated treatment system has not yet been retained.

**Please attach a diagram(s) of the treatment system labeling all of the major components.**

See Appendix I of Project Description

**3.2.4 Describe the manner in which the treated effluent will be disposed/discharged to the environment:**

Wastewater, including grey water and sewage, will be processed by the on-site sewage treatment system normally provided with each camp. Treated effluent will be released to land or will be spread on ice roads, as directed by INAC Land Use Inspectors or the Project Water Licence, once water quality discharge criteria have been met. MGM will follow all terms and conditions for release as outlined in the Project's Water License and Land Use Permit.

**3.2.5 What other back-up methods are available for sewage and greywater treatment/disposal (i.e. contingency)?**

In the event that a suitable treatment system is not available or is not able to meet expected licensed performance (discharge) criteria, effluent will be hauled by vacuum tank truck to the municipal treatment facility in Inuvik for disposal. This contingency assumes that authorization is granted by the Town of Inuvik, and sufficient treatment capacity is available.

**3.2.6 What is the proposed method of solid waste disposal?**

An on-site waste segregation system will be used for metals, plastics, refined oils and oily waste. Separated recyclable materials and plastics will be offered to local communities for recycling and re-use whenever possible.

The camps will have dual-chamber, diesel fired forced air incinerators. Combustible materials and food wastes will be incinerated onsite on a daily basis. Incinerator ash will be trucked out and disposed of at the Inuvik landfill, or an appropriate alternative disposal facility. Industrial and hazardous wastes will be transported south to an approved waste management facility. Contaminated snow will be collected and melted and evaporated in a diesel fired evaporator. Beverage containers will be recycled through local community recycling programs.

**3.2.7 List all hazardous materials that will be used during the project as defined under the *Transportation of Dangerous Goods Regulations*.**

During operations, limited quantities of hazardous materials (e.g., oil filters and oily rags) required by various service companies will be onsite. Limited amounts of glycol, methanol and low-dose hydrate inhibitors will be stored onsite.

**3.2.8 Fuel storage**

Type of Fuel	Amount (L)	Method of Storage/ Containment	Location
--------------	------------	-----------------------------------	----------

Requirement	Volume of Diesel Fuel (L)	Storage Location	Containment
Overall Project Use	1,100,000 L per barge x 4 barges (if double-hulled) or 750,000 L per barge x 5 barges (if single-hulled)	Barge staging sites	Outer tanks empty (in case of single-hulled barges) Drip pans for transfer Dedicated fuel transfer personnel
Construction	15,000 L or 30,000 L Envirotank (one per construction crew)	Mobilized with construction crew(s)	Built-in secondary containment Drip pans for transfer
Operations	60,000 L tank (one per rig)	Rig(s)	Secondary containment
	20,000 L (two per camp)	Camp(s)	Secondary containment
	15,000 L to 30,000 L Envirotank (one to two per wellsite)	Wellsite(s)	Built-in secondary containment Drip pans for transfer

### 3.2.9 What is the proposed method of hazardous waste disposal?

Hazardous waste will be transported south to an approved waste management facility. Incinerator ash will be trucked out and disposed of at the Inuvik landfill site or in an appropriate alternate disposal facility.

## SECTION 4: DRILLING PROGRAM INFORMATION

### 4.1 What is the time frame of this project? Will this project be carried out and completed during frozen ground conditions?

Of the activities listed, some or all may be conducted in winter 2007-2008, 2008-2009 or 2009-2010. Key events and approximate time periods for the Project for each year are:

- **Advance Barge Staging** – September 1 to October 15, no activity in KIBS prior to 15 September
- **Construction** – November to April 20
- **Operations** – December to April 20
- **Decommissioning (drill site)** – April 1 – April 20
- **Demobilization (ice roads)** – early to late April
- **Demobilization (barges)** – after spring break-up (June 1 – early July, dependent on barge company)
- **Equipment Staging** – between winter seasons
- **Inspection/Monitoring** – late June to late August

**4.2 Please describe the methods in which equipment will be brought to the project area and provide a list of heavy equipment that will be transported to the site.**

A wide range of equipment will need to be transported to the Project area to support the drilling, completion and testing of the nine appraisal wells. Equipment will include the construction equipment, drilling equipment, camp units, waste treatment systems, and support vehicles to commence construction and drilling for at least one well.

MGM is considering four options for staging and mobilization:

- advance staging of equipment and fuel on barges and freezing in at barge landing sites
- barging and off-loading of equipment at existing on-land staging sites at either Camp Farewell, Lucas Point or Swimming Point
- mobilization of equipment and fuel by truck to the Project area (Section 5.4.4.1 and 5.4.4.7 for further details)
- a combination of these options.

Equipment Requirements per Single Activity

	<b>Construction</b>	<b>Drilling</b>	<b>Completions</b>	<b>Testing</b>
Vehicles and related equipment	10 trucks (vacuum, water, etc.)	4 combination trucks (vacuum, water, fuel) or equivalent	3 combination trucks (vacuum, water, fuel) or equivalent	Water/vacuum truck combination unit
	Pick-up trucks	Pick-up trucks	Pick-up trucks	Pick-up trucks
	2 front end loaders with optional attachments	2 front end loaders with optional attachments	2 front end loaders with optional attachments	1 front end loader
	4 plow/auger trucks	Rig-moving trucks, trailers and equipment	Bed truck picker	Picker truck
	2 graders complete with wing	Cement pumps, tanks, trucks, etc.		Crane
	2 bulldozers	Wireline trucks	Wireline trucks	Bed truck
	1 trackhoe			
Vehicles and related equipment (cont'd)	1 rubber-tired backhoe			
	2 dump trucks			
	4 snow cats			
Miscellaneous Equipment	1 ice profiler	Drilling rig with matting and truck shop	Service rig with matting and truck shop	Well test equipment: testing unit, separator, flare stack, piping, line heaters, tanks
	2 Delta 3's	Mud chilling unit		Tanks – fuel, water, sewage
	1 shot hole drill rig	Pressure testing unit		Light towers
	Snow making machine(s)	Blowout prevention equipment	Blowout prevention equipment	Wireline unit



	Construction	Drilling	Completions	Testing
	Snowmobiles (gasoline)	Wireline logging unit, cementing unit		Boiler
	Rathole drilling unit	Casing and well head equipment		Service rig and support equipment
		Directional drilling equipment		
		Rathole drilling unit		
		Flare tank, piping, tanks, generators, light towers		
Equipment Rentals	n/a	Oilfield service equipment rentals, as required	Oilfield service equipment rentals, as required	Oilfield service equipment rentals, as required
Accessory and Support Equipment	All accessory and support equipment such as power generators, light towers, tanks	Accessory and support (water/fuel tanks, boilers, pipe racks, generators, light towers)	Accessory and support (water/fuel tanks, boilers, pipe racks, generators, light towers)	Accessory and support (water/fuel tanks, boilers, pipe racks, generators, light towers)
Communications System	Radios, telephones, fax machines, weather monitoring equipment	Communications System	Communications System	Satellite dish and communications system
Camp	Camp complete with sewer system	Rig camp complete with sewer, water and generator systems	Camp complete with light plants and sewage system	Camp complete with light plants and sewage system
		Wellsite command centre with sewer, water and generator systems	Wellsite trailers	Wellsite trailers

**4.3 Describe any access routes and their method of construction. How many streams will be crossed? Will any stream crossings greater than 5 m be required?**

See Figure 4-2 of Project Description for proposed access routes.

Access over channels and other waterbodies will be constructed by blading and flooding the ice surface. The minimum ice thickness to ensure safe passage on all ice roads will be calculated and vehicle movement will proceed only when conditions are verified safe for passage. Channel ice depth will be profiled using electronic (ground penetrating radar) and physical ice profiling (augering). Ice

depths will be tested throughout the Project to ensure safe travel. Where conditions allow, ice roads over water will be approximately 30 m wide.

Overland access roads will be kept to a minimum and will be constructed using an ice pad over a snow base. Overland ice roads will be constructed by flooding, initially using low ground pressure vehicles for construction. Once constructed, snow/ice cover on overland access roads will be at least 15 cm thick, and up to 20 m wide with an additional 50 m snowbelt on either side. The snowbelt protects the access from excessive snow accumulation. Any tall vegetation will be walked down using low ground pressure vehicles. Some minimal cutting of larger vegetation may occur; however, this will only be done where absolutely necessary. Snow ramps will be used to protect banks of waterbodies and associated vegetation.

When constructing overland ice roads, any large obstructions (e.g., surface driftwood) will be pushed off to the edge of the roadway. The number of watercourse crossings will be minimized as much as possible. Crossings will be constructed using clean snow and water. Crossings will be removed or v-notched after use.

Water for all ice road and pad construction will be withdrawn from Mackenzie River channels. Water will be withdrawn in accordance with applicable guidelines and the conditions of the Project Water Licence.

An emergency shack and a small fuel cache with secondary containment may be maintained at a strategic location along the ice road to provide emergency shelter in the event of poor weather or equipment problems.

#### 4.4 Please provide the name, latitude and longitude, and UTM coordinates for all proposed well sites.

The Project consists of up to nine appraisal wells within nine potential drilling target areas centered on the locations below on Ellice, Langley and Olivier Islands in the outer western Mackenzie Delta.

Project Area	Latitude	Longitude	Easting (E)	Northing (N)
West Langley	69°16'50"N	135°49'48"W	467226	7685872
East Unipkat	69°13'16"N	135°19'56"W	486842	7679056
Arvoknar	69°11'48"N	135°31'44"W	479029	7676396
North Langley	69°19'30"N	135°40'55"W	473127	7690776
Southeast Ellice	69°6'30"N	135°49'32"W	467143	7666671
Atik	68°58'23"N	135°32'32"W	478281	7651461
West Olivier	69°11'8"N	136°6'56"W	455755	7675482
Aput	69°1'2"N	135°41'58"W	472047	7656448
South Langley	69°15'55"N	135°31'28"W	479278	7684043

Please, see the Figures 4-1 and 4-2 for the Project well site locations

#### 4.5 Indicate the total estimated volume of drilling wastes in cubic metres.

The estimated waste volume per well is 100 m<sup>3</sup> of cuttings (fine gravel and sand, along with a stiff clay-like "overflow" from the centrifuges), and about 300-500 m<sup>3</sup> of waste mud (unforeseen hole or mechanical problems could significantly increase this). This would represent approximately 15 truckloads of solids and 20 truckloads of liquids (volumes of solid per truck are limited by weight).

**4.6 Indicate methods for the disposal of drilling wastes and attach a management plan.**

- Sump
- Remote Sump
- Down Hole
- On-site Treatment
- Off-site
- Other \_\_\_\_\_

**4.7 What is the capacity in cubic metres of the sump? Attach a drawing to scale of the layout of the proposed sump.**

There will be no construction and/or use of sump in the Project.

**How will the sump berms be protected from erosion?**

N/A

**Provide information on the soil type, permeability and depth of the active layer at the proposed sump location.**

N/A

**How will water used for drilling be recycled/reclaimed?**

MGM is exploring the option of de-watering the mud (partially or completely) using flocculation, centrifuges and evaporators, prior to shipping it in leak-proof containers by truck or by barge

**What measures are contemplated for surface drainage controls?**

N/A

**What are the planned abandonment procedures for sumps?**

N/A

**4.8 Mud SystemType(s): Check all that apply:**

- Gelchem
- Invert
- KCL
- Other KCL will be used, for freeze depression Ultradrill or similar inhibitive mud additive will be used

**Please provide a complete list of all planned drilling mud additives.**

Please, refer to the Appendix F – *Drilling Mud Constituents* of the Project Description for the list and details.

**4.9 Indicate any potential for encountering artesian aquifers or lost circulation within the surface hole (to casing depth):**

None expected based on offsets. Upper section of surface casing is in permafrost.

**4.10 Describe the surficial geologic and hydrogeologic conditions in the immediate vicinity of the well site.**

The terrain of Ellice, Langley and Olivier Islands is low-lying with elevations generally close to sea levels with few areas above 20 m in elevation. The area is generally flat to gently sloping, and is composed primarily of recent river sediments. Some areas of higher ground exist on the southwest corner of Langley Island.

The Project occurs primarily in the outer, active portion of the Mackenzie Delta and overlaps a number of major and minor channels of the Mackenzie River, including Arvoknar and Reindeer Channels. Spring flooding is the most important hydrologic process in the area (Bigras 1990). Peak water levels typically occur from late May to early June and are influenced by ice jams up-river in the main channels of the Delta (Bigras 1990; Marsh et al. 1999). After spring floods, water levels recede over the summer months, with the exception of the occasional rise in water levels because of rainstorms upstream of the Delta (Marsh et al. 1999). River channels are highly turbid during the summer months but become clear with freeze-up.

The hydrology of lakes in the outer Delta is determined primarily by their elevation relative to water levels of the nearby Mackenzie River channels (Marsh et al. 1999). The hydrology of lakes is also influenced by snow melt and surface runoff from the surrounding area. Larger lakes may provide overwintering habitat for fish.

For more detailed description of geologic and hydrogeologic conditions in the vicinity of the well site can be found in Sections 11.3 – *Terrain, Soils and Permafrost* and 11.4 *Hydrology and Water Quality* of the Project Description.

## **SECTION 5: CONTINGENCY, ABANDONMENT AND RESTORATION PLANNING**

**5.1 Attach the proposed or existing contingency plan which describes course of action, mitigative measures and equipment available for use in the event of system failures and spills of hazardous materials (in compliance with NWT Water Board Guidelines for Contingency Planning, 1987).**

MGM is currently developing an ERP to be used for winter activities. In preparation for the Project, MGM will review and supplement the ERP to cover detailed activities associated with the proposed scope of work. All project staff conducting surveys will be briefed on their responsibilities as outlined in the ERP. Emergency Response drills/exercises are routinely conducted during Project operations to ensure appropriate and timely response to emergency and spill situations. MGM will submit the ERP to the NEB for approval. Included with this project description is the ERP Table of Contents (Appendix G of the Project Description).

## **5.2 Outline the planned abandonment and restoration procedures.**

The success of the wells (i.e., the presence of hydrocarbons) will dictate if the wells will be suspended for future testing or production, or if they will be permanently abandoned. If successful, the wells will be suspended and well heads will be installed (Figure 5-5). Well heads will be appropriately marked and protected. If abandoned, all equipment will be dismantled and the wells will be capped below ground level. The suspension or abandonment will be performed as per National Energy Board (NEB) regulations.

The drill sites, campsites, access roads and fuel storage sites will be inspected for spills as equipment is removed from the site. All contaminated ice and snow will be removed and processed in the evaporator, and the hydrocarbon remnants will be trucked to an approved disposal site. Areas of potential effects will be inspected, documented, reported and photographed for further assessment and clean-up as necessary. All equipment, survey stakes and construction debris associated with the operations will be removed upon completion of drilling and testing. All materials will be removed from wellsites at the end of the Project. Any solid wastes remaining at the staging area(s) from demobilization activities will be transported to an approved disposal location (e.g., Inuvik landfill).

An option for demobilization of equipment and materials is transport by truck to Inuvik, Tuktoyaktuk or the staging site(s). Alternatively, if barges are frozen-in at or near the drilling locations, some equipment may be stored on those barges for removal after break-up. Barges will remain at the mooring sites and will be retrieved by the barge operators following spring break-up.

The project area will be inspected via helicopter during the summer following the completion of each year of the drilling program to ensure all debris has been removed and to assess/identify any residual effects. Activities will be coordinated with all future summer program activities, as discussed in MGM's Summer Project, submitted to the EISC under separate cover. The inspections will take approximately two to four days, and will attempt to target a period of lower sensitivity for migratory birds. Any clean-up work and residual surface disturbance will be addressed as required in consultation with the appropriate regulatory agencies.

## **SECTION 6: ENVIRONMENTAL ASSESSMENT AND SCREENING**

### **6.1 Has this project ever undergone an initial environmental assessment, including previous owners? If yes, by whom/when:**

The proposed Atik drilling target area is the same as the Taktuk wellsite which was successfully screened by the EISC under Chevron (KAVIK-AXYS 2006c). Both PDs were conducted on EL 394 and EL 427 by their previous owner, Chevron.

### **6.2 What baseline data has been collected for the water bodies you intend to cross, do seismic in, or draw water from in the area? Please attach data.**

See Section 11.4 of the Project Description.

### **6.3 What baseline data has been collected and evaluated with respect to the biophysical components of the environment potentially affected by the project (wildlife, soils, air quality, etc.)? Please attach data.**

See Section 11 and Section 12.4 of the Project Description for further details.

#### **6.4 What community consultation has been done in regards to this project? Provide details of the program.**

Consultations were conducted from March 19-28th, 2007 in Tuktoyaktuk, Inuvik and Aklavik. The purpose of the consultation meetings was to discuss Project plans, community concerns and proposed mitigations. Communities, local organizations and government agencies were notified of the proposed Projects, schedules, and the technical details.

Community members and leaders were invited to participate in the evening information sharing/formal presentation session in the following ways: advertising in the Inuvik Drum newspaper (1/4 page ad); and advertisements posted on community bulletin boards. The advertising was in place for one week prior to the consultation meetings. In addition, radio ads were transmitted locally for the week prior to the meetings.

Separate meetings were held with the HTC's in each community, and a combined meeting was held in each community with community corporations, elders committees and the general public. Table 10-1 presents the meeting schedule and the number of attendees at each location.

Up to five MGM representatives attended the meetings with the HTC's and the community sessions. These representatives included technical experts and specialists in the following areas: drilling, environment, geophysics, and community and regulatory affairs. The formal presentation consisted of a PowerPoint presentation with specific information on the proposed projects. Paper copies of the presentation were made available. The committees and community members asked questions during and after the presentation. The MGM representatives also attended several informal meetings with regulatory authorities and agencies.

Table 10-2 in Section 10 of the Project Description summarizes the issues raised during the consultations and the corresponding responses and lists sections where these concerns have been addressed in this document. Complete community consultation results can be found in Appendix A of the enclosed Project Description.

Please, refer to the Section 10 – *Community Consultation* of the Project Description for further details.

#### **6.5 Please provide the following information:**

- a) description of the environment (including known historic sites, results of any archeological assessments, location of survey monuments, wildlife, waterbodies, etc.)**

See Sections 9 and 11 of the Project Description.

- b) potential environmental impacts (including cumulative and socio-economic effects)**

See Sections 12 and 13 of the Project Description.

- c) proposed mitigation to potential environmental impacts.**

See Sections 12 and 13 of the Project Description.

**d) any follow-up or monitoring programs to be implemented to verify effectiveness of mitigation measures.**

The Project area will be inspected via helicopter during the summer following the completion of each year of the drilling program to ensure all debris has been removed and to assess/identify any residual effects. Activities will be coordinated with all future summer program activities, as discussed in MGM's Summer Project, submitted to the EISC under separate cover. The inspections will take approximately two to four days, and will attempt to target a period of lower sensitivity for migratory birds. Any clean-up work and residual surface disturbance will be addressed as required in consultation with the appropriate regulatory agencies.

See Sections 5.4.6 and 5.4.7 of the Project Description for final decommissioning, cleanup and disposal at the Project site.

**SECTION 7: LIST OF ATTACHMENTS**

The following is the list of attachments with this application.

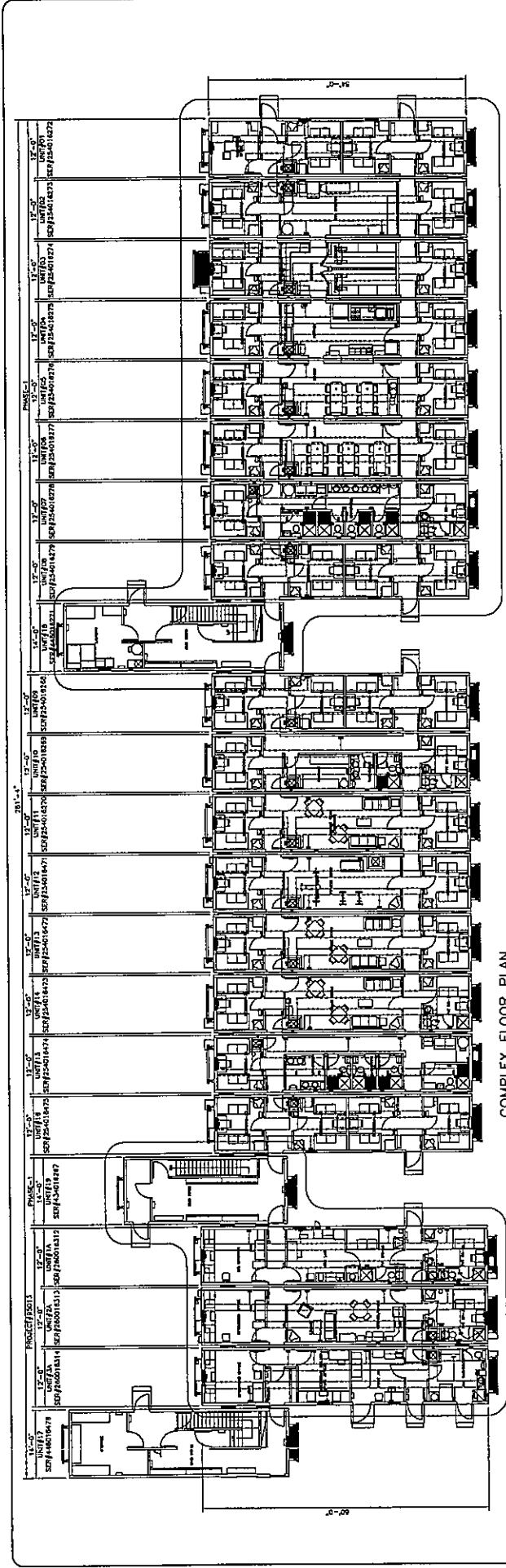
Reference to Question #	Title	Page / Section Number
3.2.3	MGM Energy Corp. Ellice, Langley, and Olivier Drilling, Completion and Testing Project: Winters 2007-2008, 2008-2009, and 2009-2010 Project Description	Enclosed (25 copies and 1 digital copy)

The following references to the listed questions are described in the enclosed MGM Energy Corp. Ellice, Langley, and Olivier Drilling, Completion and Testing Project: Winters 2007-2008, 2008-2009, and 2009-2010 Project Description.

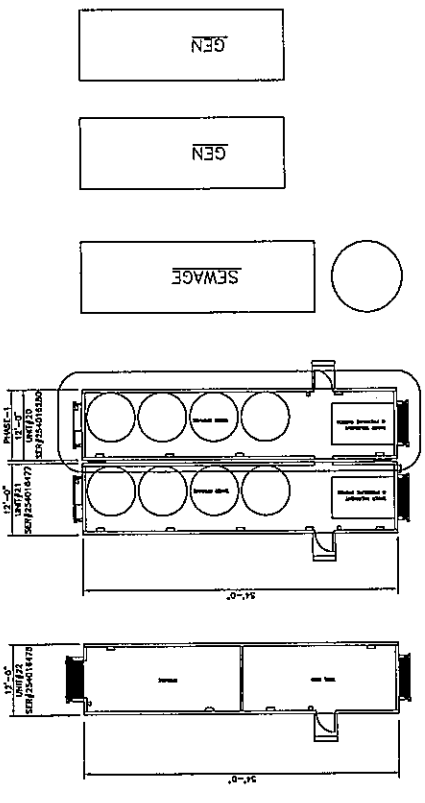
Reference to Question #	Title	Page / Section Number
2.1	Project Description	Page 4-3, Figure 4-1
2.1	Project Description	Page 4-4, Figure 4-2
2.1 Table	Project Description	Page 9-1, Table 9-1
3.1.2	Project Description	Page 5-16, Section 5.4.5.6
4.2	Project Description	Page E-1, Appendix E; page 5-8, section 5.4.4.1; page 5-17, section 5.4.4.7;
4.3	Project Description	Page 4-4, Figure 4-2
4.4	Project Description	Page 4-3 and 4-4, Figures 4-1 and 4-2
4.8	Project Description	Page F-1, Appendix F
4.10	Project Description	Page 11-3, Section 11.3 ; Page 11-4, Section 11.4
5.1	Project Description	Page G-1, Appendix G
5.2	Project Description	Page 5-19, Figure 5-5

6.2	Project Description	Page 11-4, Section 11.4
6.3	Project Description	Pages 11-1 to 11-11, Section 11; Pages 12-5 to 12-10, Section 12.4
6.4	Project Description	Page 10-2, Table 10-1; Pages 10-3 to 10-4, Table 10-2; Pages 10-1 to 10-4, Section 10
6.5 a)	Project Description	Pages 9-1 to 9-4, Section 9; Pages 10-1 to 10-4, Section 10
6.5 b) and c)	Project Description	Pages 12-1 to 12-16, Section 12; Pages 13-1 to 13-6, section 13
6.5 d)	Project Description	Pages 5-18 to 5-20; Sections 5.4.6 and 5.4.7





COMPLEX FLOOR PLAN



- CODE & DESIGN COMPLIANCE:**
1. WORKING DRAWING CODE-PARTS
  2. FLOOR LIVE LOAD = 100 psf
  3. CANADIAN ELECTRICAL CODE
  4. CANADIAN PLUMBING CODE
- PHASE-1**
- 1-1-3-0103 BEDROOM
  - 1-1-3-0104 BEDROOM
  - 1-1-3-0105 BEDROOM
  - 1-1-3-0106 BEDROOM
  - 1-1-3-0107 BATH
  - 1-1-3-0108 BATH
  - 1-1-3-0109 BATH
  - 1-1-3-0110 BATH
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  - 1-1-3-0112 BATH
  - 1-1-3-0113 BATH
  - 1-1-3-0114 BATH
  - 1-1-3-0115 BATH
  - 1-1-3-0116 BATH
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- PHASE-2**
- 1-1-3-0101 HALLWAY
  - 1-1-3-0102 HALLWAY
  - 1-1-3-0103 HALLWAY
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  - 1-1-3-0157 HALLWAY
  - 1-1-3-0158 HALLWAY
  - 1-1-3-0159 HALLWAY
  - 1-1-3-0160 HALLWAY
- LEGEND:**
- (X) MECHANICAL EQUIPMENT  
 (C) ON CENTER  
 (F) FIRE RATED FLOOR  
 (R) RADIANT HEATING SYSTEM  
 (T) TO BE ADVANCED
- DETAILS & SURPRISE INFORMATION:**
1. ATCO LIFT-PANEL LIFT PANEL UP TO 2ND FLOOR
  2. ALL WORK SHALL BE IN ACCORDANCE WITH THE ATCO DRAWINGS
  3. ALL WORK SHALL BE IN ACCORDANCE WITH THE ATCO DRAWINGS
  4. STROKED "X" INDICATES TO BE ADVANCED
  5. ALL WORK SHALL BE IN ACCORDANCE WITH THE ATCO DRAWINGS

**ATCO Structures**

**INTERNAL DOCUMENT CONTROL:**

DATE: \_\_\_\_\_  
 DRAWING TITLE: SINGLE STOREY FLOOR PLAN  
 PROJECT: 76 PERSON DRILL CAMP ANDERSON EXPLORATION  
 REVISION: PHASE-1 & 2  
 DRAWING NO: D-950114-02-AC1

**Customer Acceptance:**

BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 BY: \_\_\_\_\_ DATE: \_\_\_\_\_

**Notes:**

- 1. STAIRWELL ISSUE FOR PRODUCTION
- 2. (PENDING) ISSUE FOR ACCEPTANCE