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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.
	Address:	Suite 4100 350 7 th Avenue SW
		Calgary, AB T2P 3N9
		Canada
1.2	Project Name:	MGM Energy Corp. West Langley Drilling, Completion, Testing and Abandonment Project: 2008-2011
	Property Name:	
	Exploration Licence Number:	EL 427
	Closest Community (s):	Tuktoyaktuk
	Min/Max Latitude of Project Area:	69.13N / 69.22N
	Min/Max Longitude of Project Area:	135.45W / 136.00W
1.3	Primary Company Contact:	Shirley Maaskant
	Title:	Manager, Regulatory & Community Affairs
	Contact Number:	403-781-7840
	Alternate Contact Numbers:	403-781-7800
	Fax:	403-781-7801
1.4	Field Contact:	To be determined
	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:

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)

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)

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 attached MGM Energy Corp. West Langley Drilling, Completion, Testing and Abandonment Project: 2008-2011 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)

	Description	
A. Area under consideration for well sites as per PD	Yes <input checked="" type="checkbox"/>	latitude: 69.13N 69.22N
	No <input type="checkbox"/>	longitude: 135.45W 136.00W
B. waste dumps	Yes <input type="checkbox"/>	latitude:
	No <input checked="" type="checkbox"/>	longitude:
C. fuel and chemical storage areas	Yes <input checked="" type="checkbox"/>	latitude: see wellsite and staging locations.
	No	longitude:
	Yes <input type="checkbox"/>	latitude:
D. sump areas	No <input checked="" type="checkbox"/>	longitude:
	Yes <input type="checkbox"/>	latitude:
E. wastewater discharge locations	Yes <input type="checkbox"/>	latitude:

F. camps	No <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/>	longitude: latitude: see wellsite	<p>There are no camps currently on the proposed MGM sites. MGM's proposal includes a drill camp 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 34 people.</p> <p>Construction camp: it is likely that the construction camp will be located first at the barge landing and/or staging site to commence ice road construction to the wellsite.</p>
G. transportation routes	No <input type="checkbox"/> Yes <input checked="" type="checkbox"/>	longitude: latitude:	<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 potential 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 Field Reconnaissance Project have been completed.</p>
H. pings	No <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	longitude: latitude: longitude:	None identified

I. staging areas	Yes <input checked="" type="checkbox"/>	latitude: Potential barge landing and staging sites as outlined on Figure 4.1	MGM is considering options for staging and mobilization: <ul style="list-style-type: none"> • advance staging of equipment and fuel on barges and freezing in at barge landing sites • off-loading of equipment at existing on-land staging sites
	No <input type="checkbox"/>	longitude: Potential barge landing and staging sites as outlined on Figure 4.1	
J. seismic lines	Yes <input type="checkbox"/>	latitude:	
	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 type="checkbox"/>	latitude:	
	No <input checked="" 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

Maximum quantity per day (m³):	2500 m ³ for the winter season
Total quantity for project (m³):	Dependent on weather (e.g., amount of water required to maintain ice roads)
Planned uses of water:	Ice road/pad construction; construction camp; drilling camp; drilling operations; completion/testing; service camp
Operating capacity of the pump:	To be determined
Size of intake screen:	All water intakes will be screened according to <i>DFO Guideline</i> (DFO 1995) to prevent the entrainment of fish
Source of potable water:	Water withdrawals from Mackenzie River, associated channels, and other suitable waterbodies 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, associated channels, and other suitable waterbodies 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.

See Section 5.3.4.8 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 34 people.

Construction camp: It is likely that the construction camp will be located first at the barge landing and/or staging site to commence ice road construction to the wellsite.

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 36 personnel per construction crew may be required for the initial construction phase of the Project. Personnel may be accommodated at various locations, depending on whether barges will be utilized, and whether a suitable permanent camp location is available. It is likely that the construction crew will be located first at the barge landing site and/or staging site to commence ice road construction to the wellsite.

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 34 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.

During the 2007-08 operating season, ultraviolet light (UV) units were added as part of an ongoing effort to improve the system and the effluent discharge.

What is the maximum capacity per day (in m³ 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 E 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 only be released to land and will be spread on ice roads/flare pad, 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 sewage 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 an approved site. 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. The residual will be packaged and transported to an approved disposal facility. 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 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

Requirement	Volume of Fuel Capacities (L)	Storage Location	Containment
Overall Project Use	750,000 L per barges	Barge staging sites	Outer tanks empty 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	40,000-60,000 L tank (one per rig)	Rig	Secondary containment
	20,000 L (two per camp)	Camp(s)	Secondary containment
	15,000 L to 30,000 L Envirotank (one or two per wellsite)	Wellsite	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 collected and trucked out and disposed of at an approved site.

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 2008-2011. Key events and approximate time periods for the Project for each year are:

Schedule for Project Activities (yearly)

- **Barge Mobilization** – July to October 15, no activity in KIBS prior to 15 September
- **Construction** – November to April
 - Site access – November
 - Ice island – December and January
- **Operations** (drilling, completion, and testing) – January to April
- **Decommissioning** (drill site) – April
- **Equipment Staging**
 - Barge freeze-in sites – October to May
 - Staging sites – April to November
- **Demobilization** (ice roads) – early to late April
- **Demobilization** (barges) – after spring break-up (June 1 – early July, dependent on barge company)
- **Inspection/Monitoring** (barges) – September – November (barge mobilization dependent) and May - June (depending on spring breakup)

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, testing and abandonment of the well. Equipment will include the construction equipment, drilling equipment, camp units, waste treatment systems, and support vehicles to commence construction and drilling.

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
- mobilization of equipment and fuel by truck to the Project area
- a combination of these options.

Equipment Requirements per Single Activity

	Construction	Drilling	Completions	Testing
Vehicles and related equipment	10 trucks (e.g., vacuum, water)	4 combination trucks (vacuum, water, fuel) or equivalent	3 combination trucks (vacuum, water, fuel) or equivalent	3 combination trucks (vacuum, water, fuel) or equivalent
	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	1 front end loaders with optional attachments	1 front end loader
	4 plough/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			
	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 3s	Mud chilling unit	Pressure testing unit	Tanks – fuel, water, sewage
	1 shot hole drill rig	Pressure testing unit	Blowout prevention equipment	Wireline unit
	Snow making machine(s)	Blowout prevention equipment	Wireline unit	Boiler
	Snowmobiles (gasoline)	Wireline logging unit, cementing unit	Boiler	Light Towers
	Rathole drilling unit	Casing and well head equipment	Light Towers	
		Directional drilling equipment		
		Boiler		
		Flare tank, piping, tanks, generators, light towers		

	Construction	Drilling	Completions	Testing
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	Satellite system, Communications System	Satellite system, Communications System	Satellite system, Communications system
Camp	Camp complete with wastewater treatment system	Rig camp complete with wastewater treatment, water and generator systems	Camp complete with light plants and wastewater treatment	Camp complete with light plants and wastewater treatment
		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 and/or potential access routes.

Access over channels and other suitable 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 (120m right-of-way [ROW]). 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, associated channels and other suitable waterbodies. 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 seven wells within the potential drilling target area centered on the location below on Ellice, Langley and Olivier Islands in the outer western Mackenzie Delta.

Project Area	Latitude	Longitude
West Langley	69.13N 69.22N	135.45W 136.00W

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 volume for this well is 600 m³ of cuttings (fine gravel and sand, along with a stiff clay-like "overflow" from the centrifuges), and about 1200 – 2000 m³ of mud (unforeseen hole or mechanical problems could increase this substantially). This would represent approximately 40-50 truckloads (volumes of solids 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 (liquid or liquid & solids if dedicated injection well)
- ☒ 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 will use a high-efficiency solids control system to minimize the total volume of drilling fluids. Shale shaker systems, centrifuges and associated solids control equipment will be used to separate the solid drill cuttings from the liquid drilling fluid. An evaporation method may be used to reduce the volume of liquids. The re-use of the drilling fluid while drilling individual hole sections minimizes the amount of free liquid remaining at the end of drilling. Though fluid can be recycled to a certain extent during operations, these drilling fluids cannot be used on subsequent projects.

Solids (drill cuttings) will be collected, contained and transported to an approved disposal site by truck and/or barge or to an injection facility.

An in-ground sump for drill cuttings and fluids will not be used.

Drilling mud (fluids) will be re-injected into the wellbore at the end of the drilling process and transported to an approved disposal facility or to an injection facility by truck and/or barge.

Although not currently available, should an approved injection well become available during the project lifetime, MGM would consider using cuttings and fluids injection as a method of disposal (Section 8.2.2).

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 C – *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 wellsite will be located on anchored sea ice (either associated with the existing artificial island or independent of the existing island) northwest of Langley Island in the nearshore waters of the Beaufort Sea with a storage site located on Langley Island. During winter, this area is characterized by sea ice, which is landfast and anchored to the seabed to approximately the 2 m isobath. The northern tip of Langley Island is characterized by numerous channels, lakes and ponds which dominate the terrain (Figure 4-1).

For more detailed description of geologic and hydrogeologic conditions in the vicinity of the well site can be found in Sections 11.3 – *Sea Ice*, 11.4 *Hydrology and Water Quality*, 11.6 – *Sea Bed*, and 11.7 – *Terrain, Soils and Permafrost* 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 developed an Emergency Response Plan and Spill Contingency Plan (ERP) to be used for winter activities in the Mackenzie Delta region (Appendix H of the PD). The ERP covers 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.

5.2 Outline the planned abandonment and restoration procedures.

The manner of well suspension or abandonment is dependent upon how the well will be drilled (see Sections 5.2 and 5.3.4.5 of the PD).

Single Well over Single Season

If the well is drilled from the existing artificial island, or from an engineered ice island, but planned to be abandoned in the same season (before spring break-up), conventional drilling techniques will be used to drill and set casing and conductor pipe.

Single Well over Multiple Seasons

If the well is planned to be drilled from an ice island and suspended in a condition to permit re-entry in a subsequent year, a technique called "mud-line suspension" will be used. This process, commonly used in offshore drilling, allows the conductor pipe and one or more strings of casing to be run. The well may then be suspended and re-entered at a subsequent time for further drilling and/or testing.

Mud-line suspension involves using a landing ring that is welded into the conductor pipe and set about 5-10 metres below the mudline (sea bottom). A connector is installed on the conductor pipe so that it can be disconnected, leaving the remaining piece at least a meter below the sea bottom (Figure 5-2). Prior to the end of the drilling season plugs would be set in the wellbore to meet NEB requirements for suspension and/or abandonment.

In a subsequent year, to re-enter the well:

- the engineered ice island would be rebuilt and the drill rig would be positioned on top of the suspended well
- the cement plugs will be drilled out
- new drill casing would be positioned to latch on to the outer conductor pipe and then reconnect the inner strings for further drilling and or testing

It is possible to reposition to within 10 centimetres of the original location. When the drilling and testing is complete, the well would either be abandoned or re-suspended and the wellbore would be left in a condition that meets NEB requirements.

The drill site, campsites, staging site and access roads and fuel storage site 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 operations. All materials will be removed from wellsite at the end of the Project. Any solid wastes remaining at the staging area from demobilization activities will be transported to an approved disposal location.

An option for demobilization of equipment and materials is transport by truck to Inuvik, Tuktoyaktuk or the staging site. 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 the project activities 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 Field Reconnaissance Project, submitted to the EISC under separate cover. The inspections will take approximately 4 to 6 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 drilling target area is the same as the MGM's West Delta Drilling, Completion and Testing Project Description from 2008, Ellice, Langley, and Olivier Drilling, Completion and Testing Project Description from 2007 and Chevron's 3 well drilling Project Description which were successfully screened by the EISC.

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.

N/A

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 for the proposed *West Langley Drilling, Completions, Testing and Abandonment Project: 2008-2011* were conducted from April 16th to April 30th, 2008 in Tuktoyaktuk, Inuvik and Aklavik. The purpose of the consultation meetings was to discuss Project plans, community concerns and proposed mitigations. Communities and local organizations were notified of the proposed Project, schedules, and the technical details.

Community members and leaders were invited to participate in the evening information sharing/formal presentation session through advertisements posted on community bulletin boards with additional e-mails and facsimiles to organized groups. The advertising was in place prior to the consultation meetings. In addition, radio ads were transmitted locally 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 public. Table 10-1 presents the meeting schedule and the number of attendees at each location.

Two MGM representatives attended the meetings with the HTC's and the community sessions. The formal presentation consisted of a PowerPoint presentation with specific information on the proposed project. Paper copies of the presentation were made available. The committees and community members asked questions during and after the presentation.

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.

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 Field Reconnaissance Project, submitted to the EISC under separate cover. The inspections will take approximately four to six 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 5.3.5 and 5.3.6 of the Project Description for final decommissioning, cleanup and disposal at the Project site.

SECTION 7: LIST OF ATTACHMENTS

The following references to the listed questions are described in the enclosed MGM Energy Corp. West Delta Drilling, Completion and Testing Project: 2008-2011 Project Description.

Reference to Question #	Title	Page / Section Number
2.1	Project Description	Page 4-2, Figure 4-1
2.1	Project Description	Page 4-3, Figure 4-2
2.1 Table	Project Description	Page 9-1, Table 9-1
3.1.2	Project Description	Page 5-15, Section 5.3.4.8
4.2	Project Description	Page A-3, Appendix A; page 5-3, section 5.3.2; page 5-18, section 5.4;
4.3	Project Description	Page 4-3, Figure 4-2

4.4	Project Description	Page 4-2 and 4-3, Figures 4-1 and 4-2
4.8	Project Description	Page C-3, Appendix C
4.10	Project Description	Page 11-3, Section 11.3 ; Page 11-3, Section 11.4; Page 11-7, Section 11.6; Page 11-8, Section 11.7
5.1	Project Description	Page I-1, Appendix I
5.2	Project Description	Page 5-1, Section 5.2; page 5-9, section 5.3.4.3; Page 5-10, Section 5.3.4.5
6.2	Project Description	N/A
6.3	Project Description	Pages 11-1 to 11-15, Section 11; Pages 12-4 to 12-8, Section 12.4
6.4	Project Description	Page 10-1, Table 10-1; Page 10-2, Table 10-2; Pages 10-1 to 10-2, Section 10
6.5 a)	Project Description	Pages 9-1 to 9-2, Section 9; Pages 10-1 to 10-2, Section 10
6.5 b) and c)	Project Description	Pages 12-1 to 12-16, Section 12; Pages 13-1 to 13-5, section 13
6.5 d)	Project Description	Pages 5-16 to 5-17; Sections 5.3.5 and 5.3.6