National Energy Board | Office national de l'énergie

ENVIRONMENTAL SCREENING REPORT

Pursuant to the *Canadian Environmental Assessment Act*

SCREENING SUMMARY

The National Energy Board (NEB) received a Project Description from MGM Energy Corp. (MGM) for approval of two 3D seismic programs, and one 2D seismic program (the Project), primarily on Richards Island in the Mackenzie River Delta in the Northwest Territories (Figure 1, Map of Proposed Project Area). The Project would be located approximately 100 km north of Inuvik on Crown land within the Inuvialuit Settlement Region. The Project area is outside of the Kendall Island Bird Sanctuary. Seismic surveying would not occur in the adjacent nearshore waters of Beluga Bay, Mallik Bay or Mason Bay. Work is scheduled to be completed during of one or more winters between the years 2008-2011, commencing in November for completion by 15 April the following year.

The Project is expected to consist of up to 2314 km of 3D lines and 500 km of 2D lines over a total area of 271 km^2. In support of the seismic programs, the Project includes the use of land, water, disposal of water and waste. The Project is comprised of a series of source and receiver seismic lines, camps, and up to 24 staging sites and associated ice roads on the Mackenzie River and associated channels, upland waterbodies, and selected overland access. The Project will be completed with either vibroseis or dynamite as the energy source. Vibroseis may be used where source lines are over land or on bottom-fast ice. Dynamite may be used as an energy source throughout the Project or where source lines are over water bodies greater than 400 m across.

The NEB, Northwest Territories Water Board (NWT Water Board or NWTWB) and Indian and Northern Affairs Canada (INAC) are Responsible Authorities (RAs) under the Canadian Environmental Assessment Act (CEA Act or CEAA). The NEB is functioning as the Federal Environmental Assessment Coordinator (FEAC) for the Project and has prepared this Environmental Screening Report.

The environmental components with the potential to be adversely affected include soil, permafrost, vegetation, water quality and quantity, terrestrial wildlife and habitat, fish and fish habitat, listed species, air quality, cultural and heritage resources and traditional land use. Environmental impacts for use of on-land staging sites for storage of equipment and supplies and barging sites were assessed under a separate environmental screening - *Summer Field Assessment and Advance Barging and Staging Project: 2008-2011* – CEA Registry # 08-01-39269.

The RAs have examined MGM's proposed environmental protection and mitigation measures in relation to those environmental issues and determined the measures to be adequate. Each RA is of the view that, if MGM's environmental protection procedures and mitigation measures are implemented, as well as the conditions imposed by the RAs in any authorizations to be granted, the Project is not likely to result in significant adverse environmental effects. Each RA's view represents a determination pursuant to paragraph 20(1)(a) of the CEA Act.

PROJECT IDENTIFICATION

Project Title:	MGM Energy Corp.– Umiak Seismic Program		
Physical Work/Activity:	Physical activity relating to the exploration for, or the production of, oil or gas		
Applicant Name:	MGM Energy Corp. (MGM)		
Project Description Received:	02 April 2008	**CEA Act Registry Date:**	2 May 2008
CEA Act Law List Trigger:	5(1)(b) of the *Canada Oil and Gas Operations Act* 25 (1)(a) of the *Territorial Land Use Regulations* 14(6)(b) of the *Northwest Territories Waters Act*		
Project Location:	Richards Island, Mackenzie Delta, NT	**CEA Act Registry Number:**	08-01-39381
NEB File #:	OF-EP-Gen-PA-M276-05/01	**INAC File #**	N2008B0021
NWT Water Board File #	N7L1-1826		
FEAC:	National Energy Board	**CEA Act Determination Date:**	9 January 2009

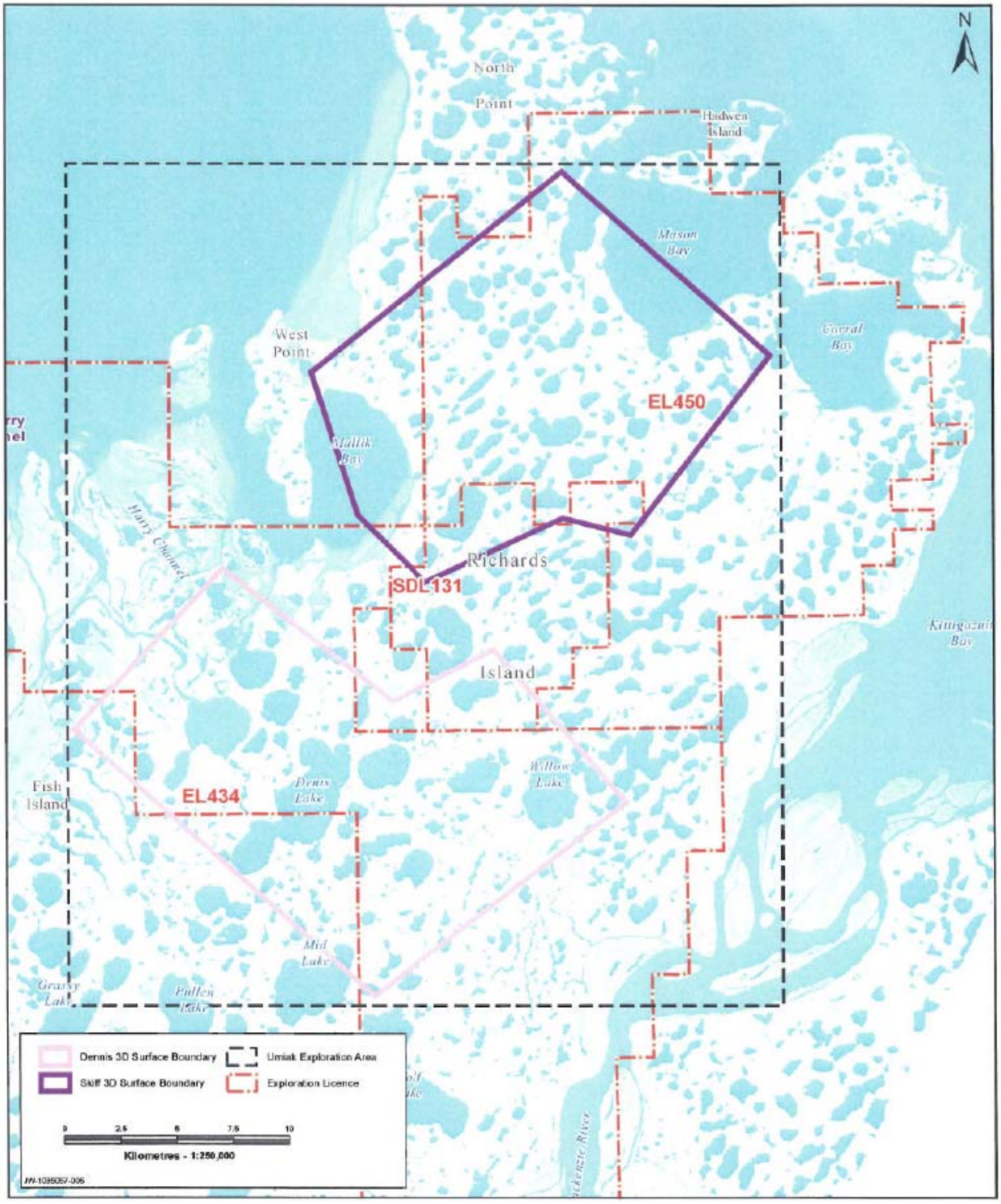

Figure 1: Map of Proposed Project Area – MGM Umiak Seismic Program

1.0 ENVIRONMENTAL ASSESSMENT PROCESS

Environmental Assessment Process

MGM's application for the Project is pursuant to paragraph 5(1)(b) of the *Canada Oil and Gas Operations Act* which triggers the CEA Act *Law List Regulations* thereby requiring the preparation of this Environmental Screening Report (ESR). MGM provided a Project Description (Appendix C, Reference 1) which forms part of the basis for the environmental screening.

Pursuant to the CEA Act *Regulations Respecting the Coordination by Federal Authorities of Environmental Assessment Procedures and Requirements*, the NEB coordinated responsible authority (RA)/federal authority (FA) involvement in the CEA Act process by sending out a letter of notification, on 9 June 2008. Indian and Northern Affairs Canada is identified as a responsible authority for the Project as it falls under paragraph 25(1)(a) of the *Territorial Land Use Regulations* for a Class A Permit. As well, the Northwest Territories Water Board is identified as a responsible authority for the Project and has concluded that the Project falls under paragraph 14(6)(b) for a Type B Water Licence. Subsequent to the CEA Registry Notice of Commencement, it was determined that, since the Project footprint does not overlap any portion of the Kendall Island Bird Sanctuary, Environment Canada is not a Responsible Authority for the Project. Fisheries and Oceans Canada (DFO), and INAC Water Resources Division are FAs providing specialist or expert information or knowledge with respect to the Project.

MGM also applied under the *Inuvialuit Final Agreement* (IFA) for a separate, stand-alone screening of the Project by the Inuvialuit Environmental Impact Screening Committee (EISC). To the extent possible, the same or similar proponent environmental assessment information, FA comments and public comments are considered in both the CEA Act and IFA screenings. The EISC provided its IFA screening decision on 20 June 2008 (see Section 3.3). The NEB, INAC and the NWT Water Board completed their separate CEA Act screening determinations on 17 November 2008, 20 November 2008 and January 9, 2009, based on this ESR.

Scope of the Project:

The proposed Project entails 3D and 2D seismic data collection work completed during one or more of the winters of 2008/09, 2009/10 or 2010/11 commencing in November for completion by 15 April the following year.

The Project includes the use of land, water, disposal of water and waste and a geophysical survey to acquire seismic data. The seismic survey is comprised of up to 2314 km of 3D lines and 500 km of 2D lines over a total area of 271 km^2. The Project includes a series of source and receiver seismic lines, camps, staging sites and associated ice roads on the Mackenzie River and associated channels, upland water bodies, and selected overland access. The Project will be completed with either vibroseis or dynamite as the energy source. Vibroseis may be used where source lines are over land or on bottom-fast ice. Dynamite may be used as an energy source throughout the Project or where source lines are over water bodies greater than 400 m across. Aircraft flights in support of project operations will be combined with concurrent MGM projects to reduce the number of flights.

The Project will be located primarily on Richards Island on Crown land (Figure 1 Map of Proposed Project Area). The Project area is outside of the Kendall Island Bird Sanctuary. Seismic survey activity will not occur in the adjacent nearshore waters of Beluga Bay, Mallik Bay and Mason Bay.

The RAs consider the principal Project to be the proposed seismic operations related to hydrocarbon exploration 100 km north of Inuvik on Richards Island, Northwest Territories.

Unless otherwise identified, this Environmental Screening Report (ESR) is based on the information provided in the MGM Project Description[1] for the proposed Project and associated documents (Appendix C).

Environmental impacts for use of on-land staging sites for storage of equipment and supplies and barging sites were assessed under a separate environmental screening – *Summer Field Assessment and Advance Barging and Staging Project: 2008-2011* – CEA Registry # 08-01039269.

Physical Work and/or Activity	Description
Construction Phase – *Timeframe:* November to April, one or more winters between the years 2008-2011	
Access and seismic lines	▪ construction of access routes extending from the Inuvik-Tuktoyaktuk and potentially the Inuvik-Aklavik ice roads with a minimum of 15 cm snow / ice cover and will be routed over water wherever possible ▪ construction of land-based seismic lines (approximately 6 m wide, except at turnarounds) with a minimum of 15 cm snow / ice cover
Camps, staging sites and helipads	▪ construction of packed snow/ice pads for temporary camps for up to 156 persons, staging sites and helipads (located on frozen water bodies)
Operation Phase – Timeframe: November to April, one or more winters between the years 2008-2011	
Fuel / fuel storage (construction and operation phases)	▪ possible storage of fuel on barges or at fuel storage sites ▪ use of mobile fuel sloops for storing/dispensing fuel ▪ storage of fuel in up to six fuel sloops with a maximum capacity of 79,000 liters of diesel each
Energy source	▪ use of either vibroseis or dynamite as the energy source at 60 m spacing or more
Recording	▪ line crew supported by tracked vehicles or helicopters will be used as necessary to layout geophones with cables for data recording
Water use and disposal / wastewater treatment	▪ withdrawal of water from the Mackenzie River and associated channels at an estimated 3,500 m^3/day ▪ treatment and disposal of waste water and release of treated sewage to land or collected and hauled to Inuvik

[1] IMG-Golder 2008, MGM Energy Corp. Umiak Seismic Program: 2008-2011

Waste disposal	▪ handling and on-site separation of solid waste (metals, plastics, refined oils and oily waste) with recyclables hauled to appropriate facility; combustibles and food wastes incinerated on-site daily in a dual chamber diesel fired forced incinerator and residue disposed of at the Inuvik landfill
Abandonment Phase	
Clean-up	▪ clean-up activities will be ongoing throughout all phases of the Project ▪ spring inspection of the campsite and staging areas prior to the spring flood event in the Delta ▪ final site inspection by helicopter in the summer, under snow-free conditions with site specific clean-up on foot as required

Rationale for the Project:

MGM will use the results of the seismic survey to delineate potential drilling locations for possible future natural gas development on Richards Island in the Mackenzie Delta.

Scope of the Factors that were Considered:

In conducting the environmental screening, the RAs considered the factors set out in paragraphs 16(1)(a) through (d) of the *Canadian Environmental Assessment Act*.

2.0 DESCRIPTION OF THE ENVIRONMENT

The following description is derived from MGM's Project Description (IMG- Golder Corporation 2008).

Land Use	• The Project is on Richards Island and includes a number of channels in the outer Mackenzie Delta. • The greater Delta area is flat land varying from stable forested areas to tidal flats. • These areas are characterized by numerous channels, lakes, ponds and islands which dominate the terrain and have disturbance by inundation, sedimentation, sea ice scour and storm surges. • The Project falls within the Aklavik, Inuvik and Tuktoyaktuk Conservation planning areas identified in the Inuvialuit Community Conservation Plans. • The proposed Project area is situated within twenty Special Management Areas. • The Project area is used for subsistence harvesting throughout the year (reindeer, moose, waterfowl, polar bears, grizzly bear, belugas and fish). The Bluenose-West and Cape Bathurst caribou herds are considered very important for traditional harvesting and the Project

	area may overlap with their winter range. • Geese are harvested in the spring and fall, and moose are hunted throughout the Delta. • The Project area is outside of the Kendall Island Bird Sanctuary. No seismic activity will occur in the Kugmallit / Kittigazuit Bay Beluga Management Zone 1A. • The Project areas overlap a number of important harvesting areas for communities within the Inuvialuit Settlement Region (ISR); however, most Project activities will occur during a period that will not overlap with harvest activities. • Interactions with harvesting parties are possible particularly during barge removal.
Terrain, Soils and Permafrost	• The Project is located above tree-line within the Tuktoyaktuk Coastal Plain EcoRegion of the Southern Arctic Ecozone. The region is composed of distinctive delta landforms in the delta of the Mackenzie River (wetlands, active alluvial channels and estuarine deposits). • Low lying landscape with numerous channels, lakes, ponds & islands which dominate the terrain. • The Project area has limited topographic relief, approximately half the Project footprint is on nearshore areas or frozen waterbodies. • Sensitive terrain areas encountered within the Project area include pingos and the eroded banks of the Mackenzie River and associated channels of the Delta, as well as moderate to steep slopes adjacent to lakes and retreating coastlines. • Characteristic permafrost soils types include organic and turbic cryosols; regosolic static cryosols are the dominant soils. • Cryosols are composed of either minerals or organic material and are characterized as having permafrost within 1 to 2 m depth. • The Project is underlain by continuous permafrost with high ice content in the form of ice wedges and pingos, permafrost can reach a maximum thickness of 750 m. • The mean annual ground temperature in the region is approximately minus 3.3^{o}C. The active layer is subject to seasonal freezing and thawing. • The depth of the active layer varies with the angle of the sun, the degree of shading, the soil texture and the water content of the soil. In sand or gravel that is well drained, the seasonal thaw may be more relatively deep, whereas in wet, peaty soils the seasonal thaw may be more shallow.

Vegetation	• Vegetation communities have adapted to permanent permafrost, providing a cooled active layer of soil and limited drainage. • There is no distinct succession of plant species observed in the Tuktoyaktuk Coastal Plains tundra due to the relatively infrequent occurrence of natural disturbance such as fire. • The northern parts of the inner Delta are dominated by willow, the outer Delta is composed of more flood resistant and maritime species such as wet sedge and grass dominated vegetation types. • Generally the Project area is comprised mainly of grasses and sedges, with localized areas of tall and low shrubs. • Predominant vegetation include: dwarf birch, and willow, Labrador tea and sedge tussocks; ground cover includes grass species, moss and sedges (currently no vegetation species are listed by the Species at Risk Act (SARA) in the Project area). • Approximately 20 plant species which may occur in the Project area are considered rare by the Government of the Northwest Territories (GNWT) Department of Environment and Natural Resources (ENR) NWT Status Ranking.
Hydrology and Water Quality	• The Mackenzie Delta is an estuarine delta with poorly developed levees, formed largely from sediments transported by the Mackenzie River. • The Delta is flat and dotted with numerous lakes, ponds and river channels. • The Project area overlaps a network of channels and is dominated by shallow floodplain lakes, some of which are recharged by through spring flooding of the Mackenzie River. • Ice break-up in the Project area in May and ice movement occurs approximately one week before peak spring water levels. • Streams which drain into the Mackenzie River have lower turbidity levels than the Mackenzie River itself. • The inner Delta lakes, with depths of 1.5 to 8 m, have turbidity levels associated with the active delta, and are generally turbid during the open water season. • Outer Delta lakes, with depths ranging from 1.5 to 21.6 m, are at a sufficient elevation to prevent flooding from the Mackenzie. • Due to the influence of salt water, estuarine coastal areas have variable water quality and water depth ranging from 1 to 32 m deep.
Aquatic Resources	• The Mackenzie Delta and estuary support a diversity of marine, anadromous and freshwater fish species. It provides critical habitat for spawning, migration and over-wintering for a variety of species. • The fish habitat types that occur in the Project area include: inner Delta lakes (including minor channels), major rivers, outer Delta lakes

	(including minor channels) and estuarine coastal habitats. • Fish that may occur in the Project area and that are considered important to the community include: Arctic cisco/grayling, blue herring, broad whitefish, burbot, inconnu, northern pike, lake trout, lake whitefish and the least cisco, walleye, brook stickleback, Arctic cisco, and Arctic grayling. • Currently no fish species are listed by the SARA in the Project area, Dolly Varden and inconnu are listed as "sensitive" with the ENR NWT Status Ranking Program.
Wildlife and Wildlife Habitat	• The habitat types within the Project area support a number of wildlife species of special conservation status, both territorially and federally. These are listed in Table 11-4 of the Project Description. • Areas in proximity to the Project of particular importance to migratory birds include Kendall Island Bird Sanctuary. The Mackenzie delta provides key migratory bird habitat for a variety of shorebird and waterfowl species. • Terrestrial mammals that may be present during the program include: moose, grizzly/polar bear, wolf, wolverine, arctic fox, arctic/snowshoe hare, brown/collared lemmings, muskrat, arctic ground squirrel, caribou and reindeer (currently no terrestrial mammals are listed by the SARA in the Project area). • The Project area overlaps with the ranges of the Cape Bathurst and Bluenose West barren-ground caribou herds. • The Mackenzie Delta is classified as poor winter range for moose. • The two populations of populations of grizzly bears that may be found in the vicinity of the Project area include the Arctic coastal and barren ground grizzlies. • The majority of grizzly bear dens in the Mackenzie Delta occur on Richards Island. • Wolves may use the Project area in winter but they are not expected to occur frequently. • Important fox denning habitat is found throughout the Mackenzie Delta including the east coast of Richards Island. • Marine mammal species that may occur within the proposed Project area include polar bears, beluga whales, bowhead whales and ringed and bearded seals. • Polar bears could occur in the Project area at the time of the program. At least one denning site has been recorded near the Project area; a maternity den in the near offshore of Richards Island. • Beluga whale and bowhead whale can be found in shallow coastal waters off the Mackenzie Delta; however, they are summer residents and not likely found in the shallow channels within the Project area. • Ringed seals and bearded seals may be expected to occur in the

	Project area during the winter seismic program, as well as during any proposed barging activities. • Rock and Willow ptarmigan, gyrfalcon, and snowy owl are only bird species known to over-winter in the area, seismic activity could also overlap with the spring arrival of bald eagles and sandhill cranes. • Ross' and ivory gulls may be found in the Beaufort Sea in the fall, overlapping with barging activity.
Species at Risk or Species with Special Conservation Status	• The polar bear is ranked as "special concern" with the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), and is not currently listed under the SARA, but is awaiting public consultation for a potential listing under Schedule 1, and they are designated as "sensitive" with the ENR NWT Status Ranking Program. • The grizzly bear and wolverine are ranked as "special concern" with the COSEWIC while listed as "sensitive" with the ENR NWT Status Ranking Program along with the barren-ground caribou and the wolverine. • The bowhead whale is listed on Schedule 1 of the SARA as "endangered" however they are not expected to occur in the Project area during the winter seismic program, however they could be present during barging activity. • Primary birds of concern that may occur in the Project area and are listed by the SARA include: Ross's gull "threatened", the Eskimo curlew and ivory gull "endangered" and the short-eared owl and peregrine falcon "special concern". • None of the fish species likely to occur in Project area are listed by the SARA or the COSEWIC. However, walleye, brook stickleback, Arctic cisco, Arctic grayling, Dolly Varden and inconnu are considered "sensitive" according to ENR NWT Status Ranking Program. • Other ENR NWT Status Ranking Program listed species include, Eskimo curlew, peregrine falcon, short-eared owl, rusty blackbird, northern pintail, grey-headed chickadee, lesser scaup, common eider, king eider, long-tailed duck, harlequin duck, black scoter, surf scoter, white-winged scoter, least sandpiper, semi-palmated sandpiper, hudsonian godwit, red phalarope, red-necked phalarope, whimbrel, dunlin, lesser yellowlegs, American tree sparrow, Harris's sparrow, American pipit, blackpoll warbler, common snipe, and American golden plover.
Traditional and Other Resource Use	• The Project activities overlap spatially, but not likely temporally, with a number of areas that provide important habitat for migratory birds. • Project activities will not occur during the same time as fish harvesting. • There is little temporal overlap of the Project with belugas in inshore Mackenzie Delta area waters from mid-June to September.

	• The Project areas overlap a number of important harvesting areas for communities within the ISR, however, most Project activities will have minimal overlap with traditional harvesting activities.
Cultural and Heritage Resources	• The potential for heritage resources in the program area is considered high. • There are approximately 57 recorded archaeology sites within the area by the Prince of Whales Northern Heritage Centre (PWNHC). • Archaeology sites are scattered throughout the area, however most are concentrated in its south-east concern (along Kittigazuit Bay) and north-eastern areas (between Mallik Bay and Mason Bay). • Most sites are classified as prehistoric, and types of finds include campsites, burial sites, lookouts and isolated finds. • A burial/village site with houses, middens and graves, as well as a whaling station/village site with houses, caches and middens is located in Kittigazuit Bay. • A lookout is located on a bluff to the east of Mallik Bay. • A Historical Resource Impact Assessment (HRIA) will be conducted and submitted to the PWNHC prior to Project commencement.

3.0 CONSULTATION

3.1 Consultation Carried Out by MGM Energy Corp.

MGM Energy Corp. conducted formal and informal public consultations from 12-18 February 2008 in Tuktoyaktuk, Inuvik and Aklavik to discuss project plans, community concerns and proposed mitigation (see Appendix A1 for MGM Consultation Details). Communities and local organizations were notified of the proposed project, schedule and technical details.

Community members and leaders were asked to participate in the evening information sharing/formal presentation session through advertisements posted on community bulletin boards, with additional emails and facsimiles to organized groups as well as radio ads that were transmitted locally prior to the meeting.

Separate meetings were held with the Hunters and Trappers Committees (HTCs) in each community and a combined meeting was held in each community with Community Corporations, Elders Committees, and the general public. Three members attended the session in Tuktoyaktuk, nine in Inuvik and eleven in Aklavik.

MGM conducted meetings at the INAC Inuvik office, DFO Inuvik Office, the NWT Water Board Yellowknife and Inuvik offices, and the NEB office in Calgary between the months of February and August in 2008. The meetings focused on discussing the planning, implementation and execution of upcoming programs as described in the Project Description submitted.

3.2 Involvement of other Federal Authorities pursuant to the CEA Act

Based on the type and location of the Project, and the nature of the environment that could be affected by the Project, the NEB functioning as the FEAC contacted Environment Canada (EC), Transport Canada, Fisheries and Oceans Canada (DFO), INAC, NWT Water Board, Natural Resources Canada (NRCan), Health Canada and Parks Canada. An overview of FA involvement is provided in Appendix A.2

3.3 Consultation carried out by the Environmental Impact Screening Committee

The Environmental Impact Screening Committee (EISC) reviewed the application and decided on 20 June 2008[2] that the development, if authorized is subject to the following environmental recommendations, will have no significant negative impact on the environment or Inuvialuit wildlife harvesting in the Inuvialuit Settlement Region [IFA Section 11 (17)(b)].

The EISC determination letter dated 20 June 2008 made the following recommendations:

> Both polar and grizzly bears are listed as Species of Special Concern by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). The harvest of both bear species is regulated by quota and the loss of a bear due to a defense kill is considered a significant impact to the Inuvialuit harvest. As noted in the Project Description the development is in an area where both bears are known to den. The developer stated in their Project Description that it will, if required, conduct bear den surveys in partnership with the Department of Environment and Natural Resources (ENR). Due to the nature of the two seismic programs and the area is a known bear denning area, it is recommended that bear den surveys be undertaken to reduce any potential impact of the development interfering with the denning activities of the two bear species.
>
> The EISC would suggest that the developer consult ENR and the Wildlife Management Advisory Council (NWT) on the use of the Forward Looking Infrared Radar (FLIR) as an additional technique for identifying occupied bear dens in the development area.

The EISC has also indicated the following:

> The developer has requested a three year approval for the Umiak Seismic Program. The Committee is considering this request took into account the concerns associated with the staging of fuel in single hulled barges in the Delta. Unless the developer utilizes engineered facilities, existing gravel pads and/or double hulled barges for the staging of fuel, the **EISC approval for the development is for one year**. During the developer's presentation to the EISC on June 19th, the developer noted that the location of the seismic programs on Richards Island may allow the developer to utilize land based facilities for the storage of fuel. The EISC would appreciate an update on this alternate fuel handling approach prior to the initiation of the seismic program.

[2] See Appendix C - #2, 20 June 2008– Environmental Impact Screening Committee screening decision letter and attachments

Subsection 11(31) of the Inuvialuit Final Agreement (IFA) states, "No licence or approval shall be issued that would have the effect of permitting any proposed development to proceed unless the provisions of this section have been complied with."

The EISC received correspondence from Fisheries Joint Management Committee (FJMC), Inuvik Hunters and Trappers Committee, DFO, EC and Government of Northwest Territories – Environment and Natural Resources for consideration in its screening decision (see Appendix C, Reference #2).

3.4 Consultation Carried out by INAC

INAC sent request for comments to various parties and government agencies regarding the MGM Umiak Seismic Program 2008-2011. Further Details are provided in Appendix A.3.

3.5 Consultation Carried out by NWT Water Board

A letter was sent out by the NWT Water Board requesting comments regarding the MGM Umiak Seismic Program 2008-2011. Further details are provided in Appendix A.4.

4.0 ENVIRONMENTAL EFFECTS ANALYSIS

4.1 Baseline Information and Sources

The RAs analysis is based on the information in the Project Description, comments from FAs and references in the Appendices.

4.2 Methodology of the RAs Environmental Assessment

In assessing the environmental effects of the Project, the RAs used an issue-based approach. In its analysis within Section 4.3, the RAs identified interactions expected to occur between the proposed Project activities and the surrounding environmental elements. Also included were the consideration of potential accidents and malfunctions that may occur due to the Project and any change to the Project that may be caused by the environment. If there were no expected element/project interactions then no further examination was deemed necessary. Similarly, no further examination was deemed necessary for interactions that would result in positive or neutral potential effects. In circumstances where the potential effect was unknown, it was categorized as a potential adverse environmental effect.

Section 4.4 includes a table listing all potential adverse environmental effects that are normally resolved through the use of standard design or routine mitigation measures. In these cases, mitigation measures are outlined or explanations are provided as to why mitigation measures are not required. Further information regarding mitigation measures may also be found in MGM's response to NEB Information Requests (Appendix C, Reference 3 a-d).

Section 4.5 addresses cumulative effects and Section 4.6 addresses follow-up programs, and Section 4.7 and Appendix B list proposed conditions for any subsequent approval of the Project.

4.3 Project – Environmental Interactions

	Environmental Element	Project Inter-action Y/N/U	Description of Interaction (How, When, Where)	Type of Potential Effect P/Ntl/Adv	Potential Adverse Environmental Effects
Bio-Physical	**Terrain/Soil/Permafrost**	Y	▪ construction of and travel on right-of-ways including: ice roads, ice-pads (camp, staging area, heli-pad), seismic source/receiver lines and bridges) in areas of steep slopes ▪ right-of-ways will melt later in the spring than surrounding area	Adv	▪ disturbance to terrain that affects the stability/longevity of the slope, bed and bank of water body ▪ soil erosion, alteration of soil structure (compaction) and disturbance through vehicle movement, construction and equipment use ▪ disturbance to permafrost regime if insulative topsoil and vegetation layers disturbed
	Vegetation (including species at risk)	Y	▪ vegetation along right-of-ways will be compacted by ice road/pad construction and/or vehicle travel; potential for disturbance to vegetation if protective snow/ice layer is breached by vehicle travel ▪ right-of-ways could be located over the areas of the 20 NWT rare plant species that could potentially occur in the Project area	Adv	▪ loss of or damage to vegetation, including species of special status, along right-of-ways ▪ delayed and/or diminished vegetation growth along right-of-ways ▪ compaction and breakage of stems by vehicles
	Water Quality and Quantity, Fish and Fish Habitat	Y	▪ water withdrawal for construction (ice-roads and ice-pads) and operation (maintenance, camp) ▪ right-of-way construction and vehicle travel across water body and blockage of water flow	Adv	▪ erosion and sedimentation of water body/ fish habitat; potential obstruction of water flow in early spring ▪ detonation of explosives and drilling could suspend sediment in water bodies ▪ pressure waves from dynamite detonation

	Environmental Element	Project Inter-action Y/N/U	Description of Interaction (How, When, Where)	Type of Potential Effect P/Ntl/Adv	Potential Adverse Environmental Effects
			▪ drill cuttings suspension or pressure waves from dynamite detonation under water body ▪ introduction of deleterious substance and potential erosion of banks by construction and use of ice roads		are capable of damaging or killing fish ▪ reduction or loss of over-wintering capacity of fish-bearing lakes as well as spawning, rearing, feeding, migration and over-wintering habitats of fish-bearing streams ▪ fish entrapment in water intake hoses
	Wildlife and Wildlife Habitat (including species at risk)	Y	Direct noise and visual interactions (sensory disturbance): ▪ construction of right-of-ways and seismic operations during winter in areas of over-wintering and denning species ▪ site inspection via helicopter and site clean-up via foot during summer in areas of migrating, nesting and feeding species ▪ traffic along right-of-ways Indirect interaction via habitat: ▪ vegetation along right-of-ways will be compacted by ice road/pad construction and/or vehicle travel ▪ right-of-ways will melt later in the spring than surrounding area	Adv	Direct effects: ▪ disturbance to over-wintering species (i.e. grizzly/polar bear den abandonment which reduces survival probability of cubs, affecting the local bear population) ▪ in summer, sensory disturbance to bird migration, nesting, feeding ▪ potential for vehicle/wildlife (e.g., moose) collisions in winter Indirect effects: ▪ reduced capacity of wildlife habitat caused by loss of or damage to vegetation along right-of-ways ▪ alteration of wildlife habitat use caused by delayed and diminished growth of vegetation along right-of-ways
	Air Quality	Y	▪ vehicle and helicopter use during right-of-way construction and seismic operations in the winter and site inspection in the summer	Adv	▪ decrease in air quality from vehicle and helicopter emissions ▪ decrease in air quality from incinerator

	Environmental Element	Project Inter-action Y/N/U	Description of Interaction (How, When, Where)	Type of Potential Effect P/Ntl/Adv	Potential Adverse Environmental Effects
			▪ camp waste will be incinerated on-site		emissions
Socio-Economic	**Traditional Land and Resource Use**	Y	▪ summer and winter recreation, hunting and fishing subsistence in the vicinity of Project activities	Adv	▪ disturbance to summer and winter recreation, hunting and fishing subsistence (traditional land use)
	Heritage/Cultural Resources	Y	▪ the Project is located in an area where known cultural and heritage resources are located, construction/right of way activities may result in discovery or destruction of heritage and cultural resources	Adv	▪ construction/right of way activities may result in the loss or disturbance to cultural and heritage resources
Other	**Accidents/Malfunctions**	U	▪ fuel or refined product spills during storage, transport and transfer ▪ loss of fluids or solid waste from camp or during transportation (sewage and grey water) ▪ equipment and vehicles breaking through ice on water bodies	Adv	▪ fuel/refined product spills could contaminate vegetation, permafrost, soil and water-bodies ▪ grey/sewage/solid waste could contaminate vegetation, permafrost, soil and water-bodies ▪ potential release of deleterious substances into water-bodies
	Effects of the Environment on the Project	U	▪ winter storms could result in Project delays ▪ slow forming ice could cause delays or alter the methods used to collect data ▪ local terrain characteristics could result in alteration of access or line	Ntl	▪ project delays could extend the time required to complete the Project ▪ altering routing could increase Project footprint and water use requirements

	Environmental Element	Project Inter-action Y/N/U	Description of Interaction (How, When, Where)	Type of Potential Effect P/Ntl/Adv	Potential Adverse Environmental Effects
			routing		

Legend: Y (Yes); N (No); U (Uncertain); P (Positive); Ntl (Neutral); Adv (Adverse)

4.4 Analysis of potential adverse environmental effects that can be resolved through the use of standard design or mitigation measures[3]

Potential Adverse Environmental Effect	Proposed Standard Design or Mitigation Measures
Terrain/Soil/Permafrost	
▪ disturbance to terrain that affects the stability/longevity of the slope, bed and bank of water body ▪ soil erosion, alteration of soil structure (compaction) and disturbance through vehicle movement, construction and equipment use ▪ disturbance to permafrost regime if insulative topsoil and vegetation layers disturbed	▪ access and line routing will include: • utilizing lakes and river channels in the vicinity of the Project area • utilizing existing seismic lines for overland access within the Project area • minimizing disturbance to sensitive terrain and wildlife habitat and coordinating with others programs in the vicinity to minimize the number of ice roads required • detailed access and line routing will be scouted out prior to Project commencement (sensitive features will be avoided) ▪ majority of Project will occur on frozen, stable ground (winter operations) ▪ overland access will be minimized to the extent possible ▪ low ground pressure vehicles will be used to mitigate disturbance to insulating soil and vegetation ▪ low impact practices for seismic activities will be applied (modified to reflect site specific conditions) ▪ steep river, lake banks and terrain will not be traversed; gradual alternate routes or detours will be used ▪ surface disturbance will be repaired immediately and covered with snow/ice as appropriate ▪ if available, existing campsites will be used and appropriately located in proximity to the program area ▪ MGM will adhere to the most recent DFO Ice Bridge Operational Statement ▪ gravel will be used in shot-holes as infill only in the event of overpressure critical area ▪ charge size will be reduced and shot hole depth will be increased,

[3] Mitigation measures are derived from the Project Description and Information Request responses from MGM (See Appendix C - #3 (a-d), MGM IR #1, IR #2 and IR #3 responses to the NEB)

Potential Adverse Environmental Effect	Proposed Standard Design or Mitigation Measures
	as well as bentonite, drill cuttings and hole plug may be used to mitigate the potential for shot-hole cratering ▪ pre-operations training and daily safety meetings will include shot hole operations procedures to reduce the potential for shot-hole cratering ▪ dozers will be equipped with mushroom shoes ▪ MGM will minimize the number of passes where practical ▪ clean-up and remediation methods, an Emergency Response Plan, and a Spill Response Plan will be in place to mitigate potential effects of a spill
Vegetation (including species at risk)	
▪ loss of, or damage to vegetation, including species of special status, along right-of-ways ▪ delayed and/or diminished vegetation growth along right-of-ways ▪ compaction and breakage of stems by vehicles	The above design features or measures to mitigate potential adverse effects to terrain, soil and permafrost, would also mitigate potential adverse effects to vegetation. Additionally, the following design features and measures are proposed: ▪ seismic lines that coincide with shorelines will be rerouted to avoid parallel, linear disturbance to riparian vegetation communities ▪ a minimum of 15 cm of snow cover will be maintained on seismic lines and access routes (protecting low-lying vegetation) ▪ vegetation clearing will be minimized as non-essential clearing will be avoided, where possible, tracked units will walk over shrubs and snow to reduce disturbance
Water Quality and Quantity/Fish and Fish Habitat[4]	
▪ erosion and sedimentation of water body/fish habitat; potential obstruction of water flow in early spring ▪ detonation of explosives and drilling could suspend sediment in water bodies ▪ pressure waves from dynamite detonation are capable of	▪ mitigation measures for soil/permafrost/terrain and vegetation will apply ▪ steep river, lake banks and terrain will not be traversed; gradual alternate routes or detours will be used ▪ all wastewater disposal will comply with requirements of the Water Licence or trucked to Inuvik sewage handling facility ▪ MGM will follow procedures as described in the Aquatic Resources Protection Plan (Appendix II in Project Description) ▪ MGM will adhere to the minimum of 10% of pre-production

[4] See Appendix C - #4, DFO letter of advice to the EISC

Potential Adverse Environmental Effect	Proposed Standard Design or Mitigation Measures
damaging or killing fish ▪ reduction or loss of over-wintering capacity of fish-bearing lakes as well as spawning, rearing, feeding, migration and over-wintering habitats of fish-bearing streams ▪ fish entrapment in water intake hoses	monitoring of shot-holes in water bodies not frozen to bottom; production monitoring will only proceed to an extent deemed appropriate by MGM in consultation with DFO ▪ ice roads that cross water bodies on land will be v-notched during decommissioning to prevent blockage of flow during spring thaw ▪ water intake hoses will be screened according to current DFO regulations (e.g. DFO's Freshwater Intake End of Pipe Fish Screen Guidelines) ▪ the Canadian Council of Ministers of the Environment (CCME) Guidelines for the Protection of Freshwater Aquatic Life will be followed
Wildlife and Wildlife Habitat (including species at risk)	
Direct effects: ▪ disturbance to over-wintering species (i.e. grizzly/polar bear den abandonment which reduces survival probability of cubs, affecting the local bear population) ▪ in summer, sensory disturbance to bird migration, nesting, feeding ▪ potential for vehicle/wildlife (e.g., moose) collisions in winter Indirect effects: ▪ reduced capacity of wildlife habitat caused by loss of or damage to vegetation along right-of-ways ▪ alteration of wildlife habitat use caused by delayed and diminished growth of vegetation along right-of-ways	▪ wildlife monitor will scout ahead of equipment to avoid disturbing any observed caribou/reindeer/bears; newly identified bear den sites will be avoided by at least 300 m ▪ grizzly bear den surveys will be conducted in collaboration with the ENR in the fall prior to program commencement ▪ MGM will work with ENR to identify suitable polar bear denning habitat prior to program commencement ▪ ice roads along river channels will be routed a maximum distance from the banks where suitable bear habitat has been identified ▪ wildlife monitors will watch for polar bears using the program area and communicate bear sightings ▪ if any dens or denning bears are inadvertently disturbed during Project activities, or if problem bears are encountered, the local office of ENR will be immediately notified ▪ ENR *Bear Encounter Response Guidelines for Oil and Gas Programs* will be followed, MGM has also developed a bear protocol to mitigate bear-human interactions, including training, garbage management and monitoring ▪ Project personnel will have bear safety training ▪ if animals are encountered, work at that location will proceed in a cautious manner until the animal has left the work area ▪ no seismic activity, barge landings or barge camps will occur in Zone 1A Beluga Management Areas ▪ minimum snow cover requirements for seismic lines and the use of a low ground pressure vehicle will help to mitigate possible effects to low-lying vegetation and caribou/reindeer habitat ▪ if caribou/reindeer are encountered; contact will be avoided, animals will be allowed to pass, and will not be harassed or fed ▪ seismic program will occur in the winter when reindeer, waterfowl and other migratory birds are not expected to be present

Potential Adverse Environmental Effect	Proposed Standard Design or Mitigation Measures
	▪ access routes to the Project area will use river channels and lakes wherever possible, overland travel will be minimized ▪ activity will be minimized should a species-at- risk be encountered ▪ camps will be kept clean, with daily incineration and/or use of bear-proof containers ▪ barging activity will not occur in the Kendall Island Bird Sanctuary ▪ summer/fall final inspection and clean-up will occur only after July 15 to avoid disturbance to breeding birds ▪ aircraft flights will be combined with concurrent MGM projects to reduce the number of flights ▪ Inuvialuit Game Council *Overflight Guidelines* will be adhered to as well as Transport Canada regulations ▪ seismic line widths will be minimized to the extent feasible
Air Quality	
▪ decrease in air quality from vehicle and helicopter emissions ▪ decrease in air quality from incinerator emissions	▪ No mitigation proposed for vehicle and helicopter emissions ▪ a dual chamber diesel fired forced air incinerator (that minimizes emissions) will be utilized for camp wastes
Heritage/Cultural Resources and Traditional Land and Resource Use	
▪ disturbance to summer and winter recreation, hunting and fishing subsistence ▪ construction/right of way activities (e.g. drilling dynamite shot holes) may result in the loss or disturbance to cultural and heritage resources	▪ recorded archaeological sites have been identified in the region surrounding the Project area and will be avoided by at least 100 m ▪ a Historical Resources Impact Assessment (HRIA) for the Project will be conducted by a qualified archeologist ▪ results of the HRIA will be incorporated into a Heritage Resource Management Plan for the Project ▪ in the event that previously unknown archaeology sites are discovered during seismic operations, operations will cease and the PWNHC and the communities will be notified and consulted for advice on mitigation ▪ public consultation with local communities has been undertaken regarding Project activities and timing ▪ known cabin sites will be identified and avoided ▪ most Project activities are expected to occur in winter, and are not expected to conflict with the majority of traditional activity in the Project Area (e.g., goose hunting in the spring) ▪ HTC's will be notified of Project activities prior to commencement to minimize interactions with traditional camps and harvesting activities ▪ Inuvialuit Game Council *Overflight Guidelines* will be adhered to

Potential Adverse Environmental Effect	Proposed Standard Design or Mitigation Measures
Accidents and Malfunctions	
▪ fuel/refined product spills could contaminate vegetation, permafrost, soil and water-bodies ▪ grey/sewage/solid waste could contaminate vegetation, permafrost, soil and water-bodies ▪ potential release of deleterious substances into water-bodies	▪ a spill contingency and emergency response plan will be in place to handle spills of fuel or hazardous materials which will be available to all persons working on site, personnel will be will be appropriately trained and made aware of procedures ▪ any leaks or spills will be cleaned up immediately, be recorded and/or reported and any remedial actions taken ▪ spills will be reported as required by regulatory guidelines to the NT-NU 24-hr Spill Report Line ▪ camp and fuel storage areas will include secondary containment that will ensure that spills or ruptures remain contained on site ▪ sites for storage of fuels, lubricating oils, chemicals or other hazardous materials will be located a minimum of 100 m away from waterbodies, surface drainages, bottom fast ice and sandbars ▪ fuel tanks/sloops will have secondary containment, built with 110% capacity of the largest tank ▪ fuel storage area will be monitored and inspected daily ▪ staging areas will be constructed of ice pads, creating a barrier which is expected to prevent spills from reaching the vegetation and soil, and allow easier clean-up ▪ vehicles will be inspected daily and will not park on rivers, lakes or ice crossing; once parked, drip trays will be used ▪ spill containment kits will be available at camps and staging sites and carried on vehicles ▪ the Mackenzie Delta Spill Response Corporation, in which MGM is a member, has personnel trained in spill response and can be mobilized in the event of an incident ▪ equipment will be well maintained and free of external fluid, leaks, grease, oil and mud ▪ equipment will be refueled and serviced at staging areas only ▪ specifically trained personnel will be tasked with refueling during initial access and camp construction, and during seismic operations ▪ ice thickness and strength will be monitored to frequently to provide safe operations ▪ journey management protocols will support safe transport of goods and personnel and reduce the risk of accidents resulting in transport related spills ▪ MGM will implement its emergency response plan in the event of a vehicle breaking through the ice ▪ the Aquatic Resources Protection Plan (Project Description, Appendix II) will be adhered to

Potential Adverse Environmental Effect	Proposed Standard Design or Mitigation Measures
	▪ a waste management plan will be developed and implemented

Summary of analysis of potential adverse environmental effects that can be resolved through the use of standard design or mitigation measures.

The RAs are of the view that for this Project, if MGM follows the above-mentioned standard design or mitigative measures and those set out in regulatory permits, licenses and authorizations any adverse environmental effects are not likely to be significant. MGM's summer inspection and clean-up activities will identify sites where mitigation measures have failed, and remediation will be undertaken. Winter and summer inspections by permitting and other interested agencies will also identify issues with implementation of mitigation measures, and potential improvements for future seismic operations.

4.5 Cumulative Effects Assessment

Potential Adverse Environmental Effects	The spatial scope for the Cumulative Effects Assessment is the Mackenzie Delta and the nearshore of the Beaufort Sea. The temporal scope of the cumulative effects assessment was based on the likelihood of effects from the past, other current projects and reasonably foreseeable activities including those that are proposed or expected to occur, to combine with similar effects from the proposed Project on the environment or resource harvesting. Residual project-specific effects were found to be negligible, once mitigation measures were considered, for all Valued Components as defined in the *IMG-Golder Corporation 2008 Project Description*, except bears (grizzly and polar bears), and waterfowl. The primary potential project-specific effect on bears and waterfowl is sensory disturbance. The residual effect was predicted for bears from Project activities. Other projects have been identified which overlap in space and time, and could potentially contribute to these effects. Bears and waterfowl could be disturbed as a result of summer helicopter activity during final inspection and clean-up, in conjunction with other helicopter activity in the area. Residual impacts to Beluga whales were predicted for sensory disturbance from barging activity in the fall.
Other projects whose effects will interact with the proposed Project's effects	With respect to effects on wildlife, the effects of the proposed Project will overlap temporally and potentially spatially with other projects as well with effects of other inspections programs (helicopter activity) in the Project area (see Section 13.1 in the Project Description for details of other projects that may overlap).
Mitigation measures	No further mitigation measures than those already discussed in Table 4.4 are proposed.
Monitoring/Follow-up Programs	No follow-up as defined by the CEA Act, is proposed. MGM will have an Environmental and Wildlife Monitor on site to assist with implementation of the proposed mitigation measures. MGM will conduct site inspections during and following operations to identify areas where additional mitigation or remediation is required. Regulator inspections will also identify environmental issues, confirm compliance with proposed mitigation and highlight areas for improvement.
Views of the RAs	Considering successful implementation of the mitigation measures, the RAs are of the view that Project effects in combination with the effects of other projects, will not be significant in the short-term. In addition, given that Project effects are expected to recover over a few years, cumulative effects as a result of the Project will be negligible in the long-term.
Evaluation of Significance	Potential adverse environmental effects on wildlife that are likely to result from this Project in combination with other projects or activities that have been or will be carried out would be of short duration (of each project), season-specific, intermittent, geographically within the project areas, reversible, and negligible to low in magnitude. Therefore, cumulative effects are not considered significant if appropriate mitigation measures are applied.

4.6 Follow-Up Program

The Project and its associated activities are routine in nature. The potential adverse environmental effects of the Project are well understood based on past projects of a similar nature and in a similar environment. Concerns expressed, related to environmental effects of the Project, have been addressed by MGM to the satisfaction of the NEB (see Appendix A for comments made during Project consultation). For these reasons, the RAs are of the view that a follow-up program would not be appropriate for this Project.

5.0 RESPONSIBLE AUTHORITY CONCLUSIONS

5.1 National Energy Board

The NEB has taken into account all submissions from RAs, FAs, government participants and the proponent that it deemed relevant for its determination.

The NEB is of the view that if MGM's environmental protection procedures and mitigation measures are implemented as well as any conditions imposed by the NEB in any authorization that may be granted, the Project is not likely to result in significant adverse environmental effects. This represents a determination pursuant to paragraph 20(1)(a) of the CEA Act.

This is a three year program and MGM is expected to monitor any changes to legislation which apply to the Project and provide appropriate updates to the NEB as required (e.g., Species at Risk Act).

5.2 Indian and Northern Affairs Canada

Upon review of the Umiak Seismic Program Project Description, INAC has no comments or concerns in reference to this Project. INAC feels that we can mitigate any potential environmental impacts with the Terms and Conditions of our Land Use Permit.

See proposed Land Use Permit conditions listed in Appendix B.1.

5.3 Northwest Territories Water Board

A Water Licence has been drafted and will be brought forward to the Board for consideration at the next NWT Water Board meeting that tentatively scheduled for 29 October 2008.

The NWT Water Board, assisted by Indian and Northern Affairs Canada, examined all of the environmental information as described or referenced in this ESR in making its decision. The NWT Water Board is of the view that MGM Energy Corp. should implement all of the policies, practices, mitigative measures, recommendations, and procedures for the protection of the environment referred to in its application.

The NWT Water Board is of the view that if MGM Energy Corp.'s environmental protection procedures and mitigative measures are implemented, as well as any conditions imposed by the NWT Water Board Type 'B' Water Licence, the proposed Project is not likely to cause significant adverse environmental effects.

See proposed draft Water Licence conditions listed in Appendix B.2.

6.0 CEA ACT DETERMINATION

Responsible Authority Decision indicated by an "X"			CEA Act Decision on the Proposed MGM – Umiak Seismic Program: 2008-2011 in the Mackenzie Delta, NWT
INAC	NWT WB	NEB	
X	X	X	Section 20 (1)(a) - Project may proceed as it is not likely to cause significant adverse environmental effects.
			Section 20 (1)(b) - Project may not proceed as it is likely to cause significant adverse environmental effects that cannot be justified.
			Section 20 (1)(c)(i) - Project must be referred to the Minister of Environment as it is uncertain whether the Project is likely to cause significant adverse environmental effects.
			Section 20 (1)(c)(ii) - Project must be referred to the Minister of Environment as it is likely to cause significant adverse environmental effects.
			Section 20 (1)(c)(iii) - Project must be referred to the Minister of Environment as public concerns warrant the reference.

NEB Determination:

BC Hogue A/CCO — 17 Nov 2008

H. Dixit
Chief Conservation Officer — Date

NWT Water Board Determination:

[signature] — Nov 20/08

Mike Harlow
Executive Director — Date

INAC Determination:

[signature] — Jan 8/09

Conrad Baetz
District Manager — Date

RESPONSIBLE AUTHORITY CONTACTS

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Mr. Mike Harlow
Executive Director
Northwest Territories Water Board
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Inuvik, Northwest Territories X0E 0T0
Facsimile (867) 678-2943

Appendix A: Consultation Details

Appendix A1: MGM Consultation Details

Table 10.1 Community Consultation Schedule

Date	Group	# Attendees	Location
12 Feb. 2008	Meeting with Inuvik Hunters and Trappers Committee	6 members	Hunters and Trappers Office, Inuvik
12 Feb. 2008	Joint Meeting with:		Ingamo Hall, Inuvik
	Inuvik Community Corporation	0 members	
	Inuvik Elders Committee	1 members	
	Public	2 members	
13 Feb. 2008	Meeting with Aklavik Hunters and Trappers Committee	4 members	Hunters and Trappers Office, Aklavik
13 Feb. 2008	Joint meeting with:		Hamlet Office, Aklavik
	Aklavik Community Corporation	3 members	
	Aklavik Elders Committee	1 members	
	Public	3 members	
18 Feb. 2008	Meeting with Tuktoyaktuk Hunters and Trappers Committee	3 members	Hunters and Trappers Board Room, Tuktoyaktuk
18 Feb. 2008	Joint meeting with:		Kitti Hall, Tuktoyaktuk
	Tuktoyaktuk Community Corporation	0 members	
	Tuktoyaktuk Elders Committee	0 members	
	Public	0 members	

Table 10.2 Summary of Public Consultation Issues and Responses and Location in this Document Where the Issue is Addressed

Concern	Response	Document Section
Program		
Are all the programs shown planned for next year?	What we are showing are all the new proposed programs we may want to do over the next three seasons.	5.1 Project Scope
Be advised, according to the Screening Committee, PDs are to be sent directly to the HTC offices. Please provide Tuktoyaktuk HTC with 7 copies.	Thanks for the information. Comment noted.	3. Regulatory Approvals
Seismic Energy Source		
What kind of explosives will you be using for seismic?	We may be using explosives and / or vibroseis depending on terrain, equipment availability, etc. Typical dynamite charges would be 1 to 3 kg at 12 to 15 m in depth.	5.6.6 Energy Source
Access		
Are all the access routes shown on the map going to be used?	No – this map is showing all possible access routes. We may use the same or different access routes for our various programs over the three seasons.	Figure 1; 5.4 Project Coordination
Are there any overland access routes?	We try to build access roads on river channels as much as possible; however, there are times that the shortest and safest route is overland to the drilling sites and seismic programs.	5.2 Seismic Line and Access Route Selection
What kind of vehicles will be traveling on the ice?	Tracked vehicles, pickup trucks and perhaps "semis" on main access routes.	5.2 Seismic Line and Access Route Selection
Barging		
Who owns the barges?	NTCL and Horizon.	12.5.3 Use of Barges for Pre-Staging
Our community has concerns about industry tying up barges needed to get supplies to the community before freeze-up. Shortage of tug boats is also a concern. However, this is NTCL's responsibility and as they are Inuvialuit owned they should service their communities first. The communities need to set up a meeting with NTCL to address this. There has thus far been plenty of discussion and cooperation with industry on this and none from NTCL.	Thanks for the information. Comment noted.	12.5.3 Use of Barges for Pre-Staging
What is the age and conditions of the barges? When were they last inspected?	We will find out from barge suppliers and provide this information to the Aklavik HTC.	12.5.3 Use of Barges for Pre-Staging

Concern	Response	Document Section
Fuel Transport and Storage		
What inspections do you do while the fuel barges are staged and you are not actively working from the barges?	We do biweekly inspections – fly over by helicopter and look for problems and signs of leakage. We may or may not land the helicopter if all looks okay from above. If there was something that caught our attention, i.e., snowmobile or human tracks, we may land and perform a more thorough inspection.	5.9 Fuel and Fuel Storage
What is the steel thickness of the fuel barges?	We will find out from the barge suppliers and provide this information to the Aklavik HTC.	5.9 Fuel and Fuel Storage
Why not have Security on site to check fuel, etc?	For the short period between mooring the barges and when the crews move in, there is a safety issue as we cannot have just one or two security people working in a remote location. We do have inspections from the air.	5.9 Fuel and Fuel Storage
How much fuel does a barge hold?	It varies due to size. There are also compartments within the barge.	5.6.1 Equipment; 5.9 Fuel and Fuel Storage
How fast do you use the fuel?	The seismic programs have barges with fuel… although it is likely that additional fuel will have to be trucked from Inuvik to complete the program. Fuel will be stored at the seismic staging area. A minimal amount of fuel will remain in the storage tanks of the barges and will remain onsite until NTCL / Horizon move the barges in the spring / summer.	5.6.1 Equipment
What precautions do you take when staging fuel barges? Do you use double hulled barges?	We only fill the inside tanks of the fuel barges, thereby creating a "double" hull with the empty outside tanks providing a certain amount of protection should damage to the side walls of the barge occur. However, the floor of the barge would still be a single hull – we try to mitigate the risk of damage to the bottom hull by carefully selecting staging areas. We look for sandy bottoms that are free of rocks to stage barges. Even though double-hulled barges would provide better protection against spills – there are no double hulled barges available to us – they do not exist.	5.9 Fuel and Fuel Storage; 12.5.3 Use of Barges for Pre-Staging
If the ice is frozen under a fuel barge and there is a leak, can you see it and would the fuel escape?	If there is any water present under the barge and a small leak was present, the water would tend to leak inward keeping the fuel in the tank – fuel is lighter than water. If there was all ice under the barge then that ice may form a barrier and help prevent the fuel from escaping, but there is some risk that the fuel could leak and we could not see it under the ice. We try to mitigate this by staging the barges on sandy areas as discussed in a previous question.	5.7.1 Camps and Staging Areas; 5.9 Fuel and Fuel Storage
Can you use something other than barges, e.g., Enviro-Tanks?	It would take a lot of Enviro-Tanks to store the fuel required. These Enviro-Tanks would have to be stored on the deck of the barges – we would likely need more barges to accommodate them. There may also be more risk hauling/storing fuel on the deck of a barge, i.e., easier access for anyone going by, more hauling/handling of very heavy loads if we move the tanks off the barge decks.	5.6.1 Equipment
Would you consider hauling half	It would not be a preferred option. There is likely	5.6.1

Concern	Response	Document Section
the diesel after roads allow?	more risk to transporting large amounts of fuel – more traffic on the ice road, heavy loads on the ice road – small chance of going through ice causing a spill, etc.	Equipment
Will you use berms for storage of fuel on land?	We would likely use Enviro-Tanks for fuel storage on land.	5.7.1 Camps and Staging Areas
Fuel Spill		
What are your cleanup capabilities? How much could you clean up? Are all people on site trained in spill response? Who is?	We have spill containment on board. Not all staff is trained in spill response, however, we have trained personnel on site. We have the ability and capability to bring in additional staff and equipment on short notice.	5.9 Fuel and Fuel Storage; 12.5.3 Use of Barges for Pre-Staging; 12.5.6 Spills; 14 Emergency Response Plan
Water and Water Withdrawal		
How many lakes will you take water from (Umiak)? There are lake trout, and too much withdrawal will harm them.	We have to follow strict guidelines as to which lakes and how much water can be withdrawn from lakes, etc., e.g., DFO guidelines.	5.5 Water Needs and Sources; 12.5.1 Water Withdrawal
Are you using biodegradable grease in the water pumping process?	We will find out and provide this information to the Aklavik HTC.	
Wastewater Management		
Are you treating sewage – often it doesn't pass specs?	We are treating our sewage. If it does not pass, it is trucked to the Inuvik Lagoon. We do not spray to land if it does not pass specification.	5.8.2 Wastewater Treatment; 12.5.2 Water Disposal; Table 12.2
Fish and Fish Habitat		
What are you doing to prevent harming or killing fish with dynamite seismic?	If required, we will conduct pressure testing per DFO requirements. This is currently being done on North Ellice 3D with excellent results.	12.5.5 Use of Explosives; Table 12.2; Appendix II ARPP
You must have clean stream / creek crossings free of willows, branches, twigs and other debris as this impedes the flow of fish.	We will continue to reinforce this point with our operators in the field.	12.5.4 Ice Roads; Appendix II ARPP
When you build ice roads the extra ice may reduce water flow and impact fish. The DFO may have studied this before. The East Channel usually gets good whitefish migration – would they be impacted?	We will check with the DFO but it seems unlikely as the Inuvik to Aklavik / Tuk ice roads are probably the thickest and there have been no adverse effects noted.	12.5.4 Ice Roads; Appendix II ARPP
Terrestrial Environment		
Do you fly over the land looking for dens, plants, etc.?	Yes, there are archaeological and biophysical studies done during the spring / summer / fall to identify rare plants, gravesites, etc. Marsha Branigan (GNWT) flies over the proposed access routes and Project	12.3 Vegetation Communities; 12.4.1 Bears

Concern	Response	Document Section
	areas to identify any bear dens.	(Grizzly and Polar); Table 12.2
Protected Areas		
What are the cross-hatched areas on the map?	These are protected areas.	12.4.2 Beluga and Bowhead Whales; Table 12.2
Safety		
Make sure your crews are aware of the ice depth as your crews could fall in.	Thanks for the information. Comment noted.	5.6.5 Lines Crossing Waterbodies
Barges could pose a safety hazard for people riding snowmobiles. Barges should have fences.	Thank you for this information. This will be addressed in our safety plan.	
Hunters and Trappers		
Will you let the cabin and trapline owners know where the seismic lines are going if they are close by cabins.	As we did in our past programs, we plan on talking to the cabin owners if we are operating in close proximity to their cabins.	12.8.2 Communication
Can you notify the HTCs prior to flying helicopters, scouting, etc. so we can answer questions from cabin owners, etc.?	Yes. We have in the past season and it seems to work well.	12.8.2 Communication
Local Knowledge		
You should know there is a lot of gravel in your proposed "Area 4" (Umiak).	Thank you for this information.	12.8.1 Environmental and Wildlife Monitors; 12.8.2 Communication
Local knowledge is very important. The Middle Channel will have very heavy ice flow during breakup – dangerous for barges; the side channels will be better.	Thanks for the information. Comment noted.	12.8.1 Environmental and Wildlife Monitors; 12.8.2 Communication
SocioEconomics		
Industry is good and bad up here. Jobs are good. MGM is responsive to needs and concerns of community.	Thank you.	12.7 Socio-Economics; Table 12.2

Appendix A.2 National Energy Board Consultation with other Federal Authorities

	RA[5]	FA[6] Specialist	None	
Fisheries and Oceans Canada s.5 – 7 May 08 Reply 21 May 08 Letter to EISC– 1 April 08		X		Comments provided to EISC and NEB.
Environment Canada s.5 – 7 May 08 Letter to EISC –7 April 08		X		Comments provided to EISC.
NWT Water Board s.5 – 7 May 08 Letter – 15 May 08	X			See NWT Water Board process comments in A.3.
Indian and Northern Affairs Canada s.5 – 7 May 08 Reply 18 June 08	X			See INAC comments in A.2.
Parks Canada s.5 – 7 May 08 no comments			X	No involvement.
Natural Resources Canada s.5 – 7 May 08 Letter – 9 May 08			X	General comments.
Health Canada s.5 – 7 May 08 Reply 16 June 08 no comments			X	No involvement.
Transport Canada s.5 – 7 May 08 no comments			X	No involvement.

[5] RA refers to a Responsible Authority as defined by the CEA Act

[6] FA refers to a Federal Authority as defined by the CEA Act

Appendix A3: INAC Consultation Details

Government Consultation

INAC sent out a letter asking for comments to the following government agencies, local aboriginal and local government groups:

Land Use Advisory Committee	Industry, Tourism and Investment, Yellowknife
GNWT - Inuvik	Municipal and Community Affairs, Inuvik
ILA - Tuktoyaktuk	Education, Culture and Employment, Yellowknife

Environment Canada, Environmental Protection Service - Yellowknife

Department of Transportation, Yellowknife

DFO- Inuvik	Environment and Natural Resources, Yellowknife
Inuvik Town Council	Inuvik Hunters and Trappers Committee
Inuvik Community Corporation	Inuvik Metis Local # 62
Inuvik Native Band	Environmental Impact Screening Committee
Aklavik Hamlet Council	Gwich'in Land and Water Board

Aklavik Band Council

Aklavik Renewable Resources Committee

Aklavik Hunters and Trappers Committee

Aklavik Community Corporation

Aklavik Metis Local #56

Tuktoyaktuk Hunters and Trappers Committee

Tuktoyaktuk Hamlet Council

Tuktoyaktuk Community Corporation

Responses to this request are listed below.

Federal Government		**Contact Person**	**Dates Comments Received**
NWT Water Resources.	Y	Nathen Richea	No comments received
DFO/Canadian Coast Guard	Y	Erica Wall/Amanda Joint	No comments received
NEB	Y	Christy Wickenheiser	No comments received
EC	Y	Mike Fournier	No comments received
NRCan	Y	M. Turpin	No comment received
Parks Canada	Y	Nelson Perry	No comment received
Territorial Government		**Contact Person**	**Dates Comments Recieved**
ENR	Y	Jason McNeill	No comment received
Health	Y	Chris Beveridge	No comment received
Transportation	Y	Sandra Cashin	No comment received
Municipal and Community Affairs	Y		No comment received
PWNHC	Y	Glen MacKay	Letter received May 13, 2008
Other			
Aboriginal Groups	**Contact Person**		**Dates Comments Received**
EISC	Y	Barb Chalmers	Screening decision letter to proponent– (IFA's 11(17)(b)) 20 June, 2008
Inuvik Hunters & Trappers Committee	Y	Sammy Lennie	Letter to EISC– 9 June 2008
Tuktoyaktuk HTC	Y	Lila Voudrach	No Comment received
FJMC	Y	Robert Bell	Letter to EISC - 7 April, 2008
Inuvialuit Game Council	Y		No Comment received
Wildlife Management Advisory Council (NWT)	Y		No Comment received

Appendix A4: NWT Water Board Consultation Details

The NWT Water Board sent the following letter 29 May 2008.

WATER REGISTER: N7-1-1826

May 29, 2008

To: Distribution

Re: MGM Energy Corp. (MGM) Umiak Seismic Project 2008-2011

Water Licence Application N7-1-1826

Attached is an application for a water licence from MGM for a proposed Umiak Seismic, completion and testing project. A project description and a Questionnaire completed by the applicant are available on the Northwest Territories Water Register, which can be found at http://www.nwtwb.com/html/registry.html under MGM Energy Corp.

Since the proposed project lies within the Inuvialuit Settlement Region, a screening of the application will be conducted by the Environmental Impact Screening Committee, pursuant to the Inuvialuit Final Agreement.

Please review this proposal and provide any comments or recommendations that you may have with regards to the licence application on or before June 28, 2008. Your suggestions for licence clauses and or requirements, in the event that the application proceeds further in the regulatory process would be most appreciated.

If no response is received by the due date, we will assume that you have no concerns. Email and fax submissions of comments are acceptable, and may be forwarded to Liz Castaneda at castanedal@nwtwb.com or faxed to (867) 765-0114.

Please note that an environmental screening is also required pursuant to the Canadian Environmental Assessment Act (CEAA). The National Energy Board will be the Federal Environmental Assessment Coordinator (FEAC) under the CEAA. Federal authorities will be requested by the FEAC, under separate cover, to identify whether they require a CEAA screening of the project or are in possession of specialist or expert information or knowledge with respect to the project.

Sincerely,

Ron Wallace

A/Executive Director

N.W.T. Water Board

Distribution:

Ivy Stone, Environment Canada

Ken Hall, GNWT/ENR

Briar Young, DFO

Reagan Stodart, ILA

Francis Jackson, INAC Water Resources

Christy Wickenheiser, NEB

Bob Mellet, GNWT/HSS

Barb Chalmers, EISC

The Water Resources Division (WRD), Indian and Northern Affairs Canada was the only reviewer to provide comments to the Water Board on the Water Licence Application. Their comments are dated June 28, 2008 and were received by the Board on June 28, 2008. The letter was forwarded to MGM as part of NEB Information request dated July 28, 2008, in which MGM issued a response on August 14, 2008.

Appendix B

B.1 CONDITIONS ANNEXED TO AND FORMING PART OF LAND USE PERMIT NUMBER N2008B0021

31 (1) (a) - LOCATION AND AREA

1.1	The Permittee shall not conduct this land use operation on any lands not designated in the accepted application, unless otherwise authorized in writing by the Engineer.	**PLANS**
1.2	The Permittee shall not conduct any part of the land use operation within 300 metres of any privately owned land or structure unless otherwise authorized in writing by the Engineer.	**PRIVATE PROPERTY**
1.3	(a) The Permittee shall offset vehicle travel in areas without a snow covered surface. (b) The Permittee shall confine the line to a maximum width of 10 metres unless otherwise authorized in writing by a Land Use Inspector.	**OFFSET VEHICLE TRAVEL**
1.4	The Permittee shall not construct parallel lines or roads unless authorized by the Engineer.	**PARALLEL ROADS**
1.5	The Permittee shall remove from Territorial Lands, all scrap metal, discarded machinery and parts, barrels and kegs, buildings and building material.	**REMOVE WASTE MATERIAL**
1.6	The Permittee shall not construct an adit or drillsite within ___ metres of the normal high water mark of a stream unless approval in writing is obtained from the Engineer.	**LOCATION OF ADITS & DRILLSITES**
1.7	The Permittee shall locate all camps on gravel, sand or other durable land.	**CAMP LOCATION**
1.8	The Permittee shall locate all lines, trails and rights-of-way to be constructed parallel to streams a minimum of 30 metres from any stream except at crossings unless otherwise authorized in writing by a Land Use Inspector.	**PARALLELING STREAMS**
1.9	The Permittee shall at all times conform to all applicable Federal, Territorial or local regulations, ordinances or bylaws.	**CONFORM TO APPLICABLE LAWS**

31 (1) (b) - TIME

2.1	The Permittee's Field Supervisor shall contact or meet with a Land Use Inspector at the Inuvik office of the Department of Indian Affairs and Northern Development, Phone Number (867) 777-3361, at least 48 hours prior to the commencement of this land use operation.	**CONTACT INSPECTOR**
2.2	The Permittee shall advise a Land Use Inspector at least 10 days prior to the completion of the land use operation of (a) his plan for removal or storage of equipment and materials, and (b) when final clean-up and restoration of the lands used will be completed.	**REPORTS BEFORE REMOVAL**
2.3	The Permittee shall submit a progress report to the Engineer and Land Use Inspector every _____ days during this land use operation.	**PROGRESS**
2.4	The Permittee shall notify a Land Use Inspector at least 10 days prior to backfilling any sump.	**BACKFILLING NOTIFICATION**
2.5	The Permittee shall not conduct any overland movement of equipment or vehicles before 0800 hours local time on Nov. 15th unless otherwise authorized in writing by a Land Use Inspector.	**START-UP DATE**
2.6	The Permittee shall not conduct any over- land movement of equipment and vehicles after 0800 hours local time on (April 15th), unless otherwise authorized in writing by a Land Use Inspector.	**SHUTDOWN DATE**
2.7	The Engineer for the purpose of this operation designates April 15th, as spring break-up.	**SPRING BREAK-UP**
2.8	The Permittee shall remove all ice bridges prior to spring break-up or completion of the land use operation unless otherwise approved in writing by a Land Use Inspector.	**REMOVE ICE BRIDGE**
2.9	The Permittee shall remove all snow fills from stream crossings prior to spring break-up or completion of the land use operation unless otherwise approved in writing by a Land Use Inspector.	**REMOVE SNOW FILLS**
2.10	The Permittee shall dispose of all brush and timber prior to removal of men or equipment from the land use area.	**BRUSH DISPOSAL**
2.11	The Permittee shall commence and foster revegetation on all parts of the land used, as may be directed by a Land Use Inspector, within one year of the completion of the land use operation.	**RE-ESTABLISH VEGETATION**
2.12	The Permittee shall complete all clean-up and restoration of the lands	**CLEAN-UP**

used prior to the expiry date of this permit.

2.13 The Engineer reserves the right to impose closure of any area to the Permittee in periods when dangers to natural resources are severe. **CLOSURE**

31 (1) (c) – TYPE, SIZE OF EQUIPMENT

3.1 The Permittee shall not use any equipment except of the type, size, and number that is listed in the accepted application, unless otherwise authorized in writing by the Land Use Inspector. **ONLY APPROVED EQUIPMENT**

3.2 The Permittee shall equip bulldozer blades used in this operation with "mushroom" type shoes or a similar type of device which shall be extended twenty (20) centimetres below the cutting edge of the blade. **BULLDOZER BLADES & SHOES**

3.3 The Permittee shall use a forced air fuel- fired incinerator to incinerate all combustible garbage and debris. **INCINERATORS**

3.4 The Permittee shall keep all garbage and debris in a covered metal container until disposed of. **GARBAGE CONTAINERS**

31 (1) (d) - METHODS AND TECHNIQUES

4.1 The Permittee shall scout proposed lines and routes to select the best location for crossing streams and avoiding terrain obstacles prior to the movement of any vehicle that exerts pressure on the ground in excess of 35 K pa. **DETOURS & CROSSINGS**

4.2 The Permittee shall construct and maintain winter roads with a minimum of fifteen (15) centimetres packed snow at all times during this land use operation. If this cannot be done, then the Permittee shall construct Ice Roads in a manner approved by a Land Use Inspector. **SNOW ROADS/ ICE ROADS**

4.3 The Permittee shall dogleg lines, trails and rights-of-way that approach lakes, streams or public roads, as specified in writing by a Land Use Inspector. **DOGLEG APPROACHES**

4.4 The Permittee shall plug all bore holes as the land use operation progresses. **PLUG HOLES**

4.5 The Permittee shall refill and restore bore hole craters as the land use operation progresses. **REFILL CRATERS**

4.6 The Permittee shall remove all wire from the land as the land use operation progresses. **REMOVE WIRE**

4.7 The Permittee shall not erect camps or store material on the surface ice of streams, channels, lakes or any waterbodies **STORAGE ON ICE**

unless authorized in writing by a land use Inspector.

31 (1) (e) - TYPE, LOCATION, CAPACITY AND OPERATION OF FACILITIES

5.1 The Permittee shall mark all seismic lines at least once every one and a half (1.5) kilometres with a permanent marker indicating the land use permit number. **MARKERS SEISMIC LINES**

5.2 The Permittee shall ensure that the land use area is kept clean and tidy at all times. **CLEAN WORK AREA**

31 (1) (f) - CONTROL OR PREVENTION OF FLOODING, EROSION AND SUBSIDENCE OF LAND

6.1 (a) The Permittee shall, where flowing water from bore holes is encountered, plug the bore hole in such a manner as to permanently prevent any further outflow of water. **PLUG ARTESIAN WELLS**

(b) The artesian occurrence shall be reported to the Engineer within forty-eight (48)hours.

6.2 The Permittee shall remove any obstruction to natural drainage caused by any part of this land use operation. **NATURAL DRAINAGE**

6.3 The Permittee shall not use any material other than water in the construction of ice bridges **ICE BRIDGE MATERIAL**

6.4 The Permittee shall not allow any ice bridge to hinder the flow of water in any stream. **ICE BRIDGE**

6.5 The Permittee shall remove or V – notch snow fills in stream crossings as the land use operation progresses, unless otherwise authorized in writing by a Land Use Inspector. **REMOVE WATER CROSSINGS**

6.6 The Permittee shall insulate the ground surface beneath all structures and facilities associated with this land use operation to: **INSULATE GROUND SURFACE**

(a) Prevent any vegetation present from being removed and,

(b) The ground settling and/or eroding.

with a minimum of fifteen (15) cm. snow/ice pad.

6.7 The Permittee shall not move any equipment or vehicles unless the ground surface is in a state capable of fully supporting the equipment or vehicles without rutting or gouging. **VEHICLES MOVEMENT FREEZE-UP**

6.8	The Permittee shall suspend overland travel of equipment or vehicles if rutting occurs.	**SUSPEND OVERLAND TRAVEL**
6.9	The Permittee shall establish vegetation on all areas stripped of vegetation during this land use operation to a minimum of seventy(70) per cent ground cover unless otherwise authorized in writing by the Engineer.	**REVEGETATE STRIPPED AREA**
6.10	The Permittee shall apply grass seed and fertilizer to areas designated in writing by a Land Use Inspector.	**REPLANT DESIGNATED AREAS**

31 (1) (g) - USE, STORAGE, HANDLING AND DISPOSAL OF CHEMICAL OR TOXIC MATERIAL

7.1	The Permittee shall dispose of all sewage in a manner approved by a Land Use Inspector.	**SEWAGE DISPOSAL**
7.2	The Permittee shall burn all garbage and debris at least daily.	**GARBAGE DISPOSAL**
7.3	The Permittee shall remove all garbage and debris from the area of the land use operation to a disposal site approved in writing by a Land Use Inspector.	**REMOVE GARBAGE**
7.4	The Permittee shall dispose of all combustible waste petroleum products by removal.	**WASTE PETROLEUM DISPOSAL**
7.5	The Permittee shall report spills in accordance with instructions contained the NT-NU "Spill Report" form NT-NU 24 hour Spill Report Line (867) 920-8130, fax (867) 873-6924	**REPORT CHEMICAL AND PETROLEUM SPILLS**
7.6	The Permittee shall not in any circumstances deposit or allow the deposit of any deleterious substances (including but not limited to fuels, lubricants, hydraulics, and coolants) of any type into any waters, or in any place under any conditions where the deleterious substances may enter any waters.	**DEPOSITING DELETERIOUS SUBSTANCES**

31 (1) (h) - WILDLIFE AND FISHERIES HABITAT

8.1	The Permittee shall not unnecessarily damage wildlife habitat in conducting this land use operation.	**HABITAT DAMAGE**
8.2	The Permittee shall not obstruct the movement of fish while conducting this land use operation.	**FREE FISH MOVEMENT**
8.3	The Permittee shall not destroy or damage beaver dams.	**BEAVER DAMS**

8.4	The Permittee shall not destroy or damage muskrat lodges.	**MUSKRAT LODGES**
8.5	The Permittee shall not detonate explosives within Thirty (30) metres of any body of water which is not completely frozen to the bottom.	**EXPLOSIVES WATER**
8.6	Your operation is in an area where bears may be encountered. Proper food handling and garbagedisposal procedures will lessen the likelihood of bears being attracted to your operation. Information about the latest bear detection and deterrent techniques can be obtained from the Environment & Natural Resources at (867) 777- 7308 or 777 7230.	**BEAR/MAN CONFLICT**
8.7	The Permittee shall screen all water intakes from fish bearing waters to exclude fish in accordance with DFO requirements.	**SCREENS**
8.8	The Permittee shall not feed wildlife.	**NO FEEDING WILDLIFE**

31 (l) (i) - OBJECTS AND PLACES OF RECREATIONAL, SCENIC AND ECOLOGICAL VALUE

9.1	The Permittee shall not operate any machinery or equipment within one hundred and fifty (150) metres of the base of a pingo.	**PINGOS**
9.2	The Permittee shall immediately suspend the Land Use operation on the site and notify the Land Use Inspector of the location of the site and nature of any unearthed materials, structures or artifacts.	**ARCHAEOLOGICAL SITES AND /OR BURIAL GROUND**

31 (1) (j) - SECURITY DEPOSIT

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31 (1) (k) - PETROLEUM FUEL STORAGE

13.1	The Permittee shall report in writing to a Land Use Inspector the location and quantity of all petroleum fuel caches within ten (10) days after the establishment.	**REPORT FUEL LOCATION**
13.2	The Permittee shall not place any petroleum fuel storage containers within thirty (30) metres of the normal high water mark of any stream.	**FUEL BY STREAM**
13.3	The Permittee shall locate mobile fuel facilities on land when stationary for any period of time exceeding twelve (12) hours.	**FUEL ON LAND**
13.4	The Permittee shall not allow petroleum products to spread to	**FUEL**

surrounding lands or into water bodies. **CONTAINMENT**

13.5 The Permittee shall: **CHECK FOR LEAKS**

(a) examine all fuel storage containers for leaks a minimum of once every _____ days.

(b) repair all leaks immediately.

13.6 The Permittee shall not use bladders for storing and/or transporting petroleum products. **BLADDERS PROHIBITED**

13.7 The Permittee shall mark all stationary petroleum products storage facilities with flags, posts or similar devices so that they are at all times plainly visible to local vehicle travel. **MARK FUEL LOCATION**

13.8 The Permittee shall seal all container outlets except the outlet currently in use. **SEAL OUTLET**

13.9 The Permittee shall mark all fuel containers with the Permittee's name. This includes 45 gallon drums. **MARK CONTAINERS**

31 (1) (l) - DEBRIS AND BRUSH DISPOSAL

14.1 The Permittee shall spread all cut debris and brush over the areas cleared, prior to completion of the operation or expiry of the land use permit. **SPREAD BRUSH**

14.2 The Permittee shall salvage all portions of trees cleared that are larger than thirteen (13) centimetres in diameter. **SALVAGE TIMBER**

14.3 The Permittee shall neatly pile all salvaged wood at locations specified in writing by a Land Use Inspector. **PILE WOOD**

14.4 The Permittee shall not leave tree stumps exceeding 20 centimetres above the ground surface. **TREE STUMPS**

31 (1) (m) - MATTERS NOT INCONSISTENT WITH THE REGULATIONS

15.1 The Permittee shall display a copy of this permit in a conspicuous place in each campsite established to carry out this land use operation. **DISPLAY PERMIT**

15.2 The Permittee shall keep on hand, at all times during this **COPY OF**

Land Use Operation, a copy of the Land Use Permit. **PERMIT**

15.3 The Permittee shall provide in writing to the Engineer, at least forty-eight (48) hours prior to commencement of this land use operation, the following information: **IDENTIFY AGENT**

(a) person, or persons, in charge of the field operation to whom notices, orders, and reports may be served;

(b) alternates;

(c) all the indirect methods for contacting the above person(s).

15.4 The Permittee shall conspicuously display the land use permit number on all vehicles and equipment. **DISPLAY PERMIT NUMBER**

15.5 The Permittee shall ensure that a copy of this Permit, operating conditions and definitions is provided to and understood by all contractors and sub-contractors prior to the start-up of this Land Use Operation. **PERMIT CONTRACTORS & SUB-CONTRACTORS**

15.6 The Permittee shall, while conducting the operation, make every effort to avoid covering or destroying traps or snares that may be found in the area. **TRAPS PROTECTION**

15.7 The Permittee shall restore any trails used by trappers or hunters by slashing any and all trees that may fall across these paths or trails and by removing any other obstructions such as snow piles or debris that may be pushed across the trails. **TRAILS RESTORATION**

15.8 The Permittee shall submit to the Engineer a contingency plan, for chemical and petroleum spills, for use during the construction and operation of the winter road. **CONTINGENCY PLAN**

PART 1 - In this Permit:

"sump" means a man-made pit, trench hollow or cavity in the earth's surface used for the purpose of depositing waste material therein.

"drill waste" means all materials or chemicals, solid or liquid, associated with the drilling of bore holes and includes bore hole cuttings.

"dogleg" means clearing a line, trail or right-of-way that is curved sufficiently so that no part of the clearing beyond the curve is visible when approached from either direction.

Recommended Mitigation Measures Supplementary to Permit Conditions

Fuel Storage

- Fuel sloops located within 30 m of a water body should be parked within an impermeable dyke. This can be constructed of snow/ice material and will reduce the likelihood of a spill penetrating the ground and migrating into the water. Should equipment need access inside the dyked area for refueling, the opening should be on the uphill side.
- Refueling operations occurring outside an area described above should include a haz-mat/ drip tray under the tank receptacle.

Equipment

- All equipment parked or may be parked for four (4) hours or more, should have a haz-mat/drip tray under it, or be sufficiently diapered (leaky equipment should be repaired immediately).
- Low impact wheeled vehicles should be limited to properly constructed snow/ice roads. There should be no use of these vehicles on seismic lines.

Operational

- No burning of plastics
- Waste oil should be recycled
- Seismic lines crossing river channels thirty (30) meters or greater in width should be stopped short of the channel leaving a buffer (where possible) between the end of the line and the channels. Equipment crossing channels should be at designated intervals of one (1) km or more and their approaches should be doglegged.
- Sleigh camps discharging gray water to the ground should do so into a snow/ice berm which can be broken up and spread on land when the camp moves next.
- Program area should be cleaned in late April /early May to ensure that all lathe, cable and other related field equipment has been removed from the area.

Appendix B2: NWT Water Board Draft Water Licence

Draft Licence August 28, 2008

PART A: SCOPE AND DEFINITIONS

1. Scope

a) This Licence entitles MGM Energy Corp. to use Water and dispose of Waste for industrial undertakings in the Mackenzie Delta for the Umiak Seismic Project located at Latitude 69.25 to 69.60 degrees North, and Longitude 134.00 to 134.83 degrees West, Northwest Territories.

b) This Licence is issued subject to the conditions contained herein with respect to the taking of water and the depositing of Waste of any type in any Waters or in any place under any conditions where such Waste or any other Waste that results from the deposits of such Waste may enter any Waters. Whenever new Regulations are made or existing Regulations are amended by the Governor in Council under the *Northwest Territories Waters Act*, or other statutes imposing more stringent conditions relating to the quantity or type of Waste that may be so deposited or under which any such Waste may be so deposited this Licence shall be deemed, upon promulgation of such Regulations, to be automatically amended to conform with such Regulations; and

c) Compliance with the terms and conditions of this Licence does not absolve the Licensee from responsibility for compliance with the requirements of all applicable Federal, Territorial and Municipal legislation.

2. Definitions

In this Licence: **N7L1-1826**

"Act" means the *Northwest Territories Waters Act;*

"Analyst" means an Analyst designated by the Minister under Section 35(1) of the *Northwest Territories Waters Act*;

"Average Concentration For Faecal Coliform" means the geometric mean of any four consecutive analytical results submitted to the Board in accordance with

the sampling and analysis requirements specified in the "Surveillance Network Program";

"Board" means the Northwest Territories Water Board established under Section 10 of the *Northwest Territories Waters Act*;

"Greywater" means all liquid wastes from showers, baths, sinks, kitchens and domestic washing facilities, but does not include toilet wastes;

"Inspector" means an Inspector designated by the Minister under Section 35(1) of the *Northwest Territories Waters Act;*

"Licensee" means the holder of this Licence;

"Maximum Average Concentration" means the running average of any four consecutive analytical results, or if less than four analytical results collected, and submitted to the Inspector in accordance with the sampling and analysis requirements specified in the "Surveillance Network Program";

"Minister" means the Minister of Indian Affairs and Northern Development;

"Modification" means an alteration to a physical work that introduces a new structure or eliminates an existing structure and does not alter the purpose or function of the work, but does include an expansion;

"Project Description" refers to the report titled "Project Description of the Proposed MGM Energy Corp. Umiak Seismic Program: 2008", dated March, 208 and prepared by MGM Energy Corp and IMG-Golder Corporation;

"Sewage" means all toilet waste and greywater;

"Toilet Wastes" means all human excreta and associated products, but does not include greywater;

"Regulations" means Regulations proclaimed pursuant to Section 33 of the *Northwest Territories Waters Act;*

"Waste" means waste as defined by Section 2 of the *Northwest Territories Waters Act;*

"Waters" means waters as defined by Section 2 of the *Northwest Territories Waters Act;*

Draft - August 27, 2008

PART B: GENERAL CONDITIONS

1. The Licensee shall file an Annual Report with the Board not later than March 31st of the year following the calendar year reported which shall contain the following information:

   a) the total quantity in cubic metres of fresh Water obtained from all sources;

   b) the total quantities in cubic metres of each and all Waste discharged;

   c) the location and direction of flow of all Waste discharged to the land or Water;

   d) the results of sampling carried out under the Surveillance Network Program;

   e) a summary of any modifications carried out on the water supply and Waste disposal facilities, including all associated structures;

   f) a list of spills and unauthorized discharges; and

   g) any other details on water use or Waste disposal requested by the Board within forty-five (45) days before the annual report is due

2. The Licensee shall comply with the "Surveillance Network Program" annexed to this Licence, and any amendment to the said "Surveillance Network Program" as may be made from time to time, pursuant to the conditions of this Licence.

3. The “Surveillance Network Program” and compliance dates specified in the Licence may be modified at the discretion of the Board.

4. The Licensee shall, within thirty (30) days of the issuance of the Licence, post the necessary signs to identify the stations of the “Surveillance Network Program”. All postings shall be located and maintained to the satisfaction of an Inspector.

5. Meters, devices or other such methods used for measuring the volumes of water used and Waste discharged shall be installed, operated and maintained by the Licensee to the satisfaction of an Inspector.

6. All monitoring data shall be submitted in printed form and electronically in spreadsheet format on a diskette or other electronic forms acceptable to the Board.

7. All reports shall be submitted to the Board in printed format accompanied by an electronic copy in a common word processing format on diskette or other electronic forms acceptable to the Board.

8. Within thirty (30) days of issuance of this Licence, pursuant to Section 17(1) of the *Act* and Section 12 of the Regulations, the Licensee shall have posted and shall maintain a security deposit of **XXX** in a form suitable to the Minister.

9. The Licencee shall ensure a copy of this Licence is maintained at the site of operation at all times.

PART C: CONDITIONS APPLYING TO WATER USE

1. The Licensee shall obtain Water from the Mackenzie River and associated channels or other suitable waterbodies as otherwise approved by an Inspector.

2. For lakes used as a water source, a representative dissolved oxygen/temperature profile must be obtained prior to the initial water withdrawal and prior to demobilization of the project for the year.

3. The Licensee is not permitted to remove more then five (5) % of the available under ice water volume per lake as calculated using a maximum expected ice thickness of two (2) meters during a single winter season.

4. The daily quantity of Water used for all purposes shall not exceed 3500 cubic metres.

5. The water intake hose used on the water pumps shall be equipped with a screen with a mesh size sufficient to ensure no entrainment of fish (2.54 mm).

PART D: CONDITIONS APPLYING TO WASTE DISPOSAL

1. Thirty (30) days prior to the commencement of operations, the Licensee shall submit to the Board and an Inspector the specifications of the onsite Sewage Treatment Facility.

2. All Sewage shall be directed to the onsite Sewage Treatment Facility as approved by an Inspector.

3. All Waste discharged from the onsite Sewage Treatment Facility shall be directed to the land surface or to a channel of the Mackenzie River at a location approved by an Inspector.

4. There shall be no discharge of floating solids, garbage, grease, free oil or foam.

5. All Waste discharged from the Sewage Disposal Facility shall meet the following effluent quality requirements: **[Milburn's note: effluent quality criteria are not stated in the Project Description, rather, "MGM" will adhere to guidelines for release of treated wastewater as outlined in the Project Water Licence. Check Guidelines.]**

Sample Parameter	Maximum Average Concentration
Biological Oxygen Demand (BOD_5)	80.0 mg/L
Total Suspended Solids (TSS)	100.0 mg/L
Faecal Coliforms	10E4 CFU/dL
Oil and Grease	5.0 mg/L
Total Residual Chlorine (TRC)	0.1 mg/L

The Waste discharged shall have a pH between 6 and 9.

6. The Licensee shall direct all Wastes that do not meet the requirements in Part D, Item 5 to a Sewage Treatment Facility as approved by an Inspector.

7. Introduction of Water to Waste for the purpose of achieving effluent quality requirements in Part D, Item 5 is prohibited.

8. The Licensee shall dispose of all solid Wastes in a manner acceptable to the Inspector.

PART E: CONDITIONS APPLYING TO STREAM AND WATER BODY CROSSINGS

1. The Licensee shall ensure that only clean snow is used on all stream or Water body crossings and that no debris is left on the surface of the crossings.

2. Stream or Water body crossings shall be notched or removed before spring break-up to facilitate natural flow.

3. The removal of naturally occurring material from the bed or banks of any stream or Water body below the ordinary high water mark is not permitted.

PART F: CONDITIONS APPLYING TO MODIFICATIONS

1. The Licensee may, without written approval from the Board, carry out Modifications to the planned undertakings provided that such Modifications are consistent with the terms of this Licence and the following requirements are met:

   a) the Licensee has notified an Inspector in writing of such proposed Modifications at least five (5) days prior to beginning the Modifications;

   b) such Modifications do not place the Licensee in contravention of either this Licence or the *Act;*

   c) an Inspector has not, during the five (5) days following notification of the proposed Modifications, informed the Licensee that review of the proposal will require more than five (5) days; and

d) an Inspector has not rejected the proposed Modifications.

2. Modifications for which all of the conditions referred to in Part E, Item 1 have not been met may be carried out only with written approval from an Inspector.

3. The Licensee shall provide to the Board as-built plans and drawings of the Modifications referred to in this Licence within ninety (90) days of completion of the Modifications.

PART G: CONDITIONS APPLYING TO CONTINGENCY PLANNING

1. The Licensee will maintain a copy of the approved Mackenzie Delta Emergency Response Plan onsite in a readily available location, to the satisfaction of an Inspector.

2. The Licensee shall ensure that petroleum products, hazardous material and other Wastes associated with the project do not enter any Waters.

3. The Licensee shall ensure that all containment berms are constructed of an impermeable material, to the satisfaction of an Inspector.

4. If, during the period of this Licence, an unauthorized discharge of Waste occurs, or if such a discharge is foreseeable, the Licensee shall:

   a) report the incident immediately via the 24 Hour Spill Reporting Line (867) 920-8130; and

   b) submit to an Inspector a detailed report on each occurrence not later than thirty (30) days after initially reporting the event.

Draft - August 27, 2008

Witness **Chairman**

NORTHWEST TERRITORIES WATER BOARD

LICENSEE: MGM Energy Corp.

LICENCE NUMBER: N7L1-1826

EFFECTIVE DATE OF LICENCE:

EFFECTIVE DATE OF SURVEILLANCE NETWORK PROGRAM:

SURVEILLANCE NETWORK PROGRAM

A. Location of Sampling Stations

Station Number	Description
1826-1	Treated Sewage at the Point of Discharge

B. Sampling and Analysis Requirements

Draft - August 27, 2008

1. Water at Station Number 1826-1, shall be sampled every two weeks, and analyzed for the following parameters:

BOD_5	Total Suspended Solids
Oil and Grease	Faecal Coliforms
Ammonia	pH
Phosphorous	Total Residual Chlorine

2. More frequent sample collection maybe required at the request of an Inspector.

3. All sampling, sample preservation, and analyses shall be conducted in accordance with methods prescribed in the current edition of "Standard Methods for the Examination of Water and Wastewater", or by such other methods approved by an Analyst.

4. All analyses shall be performed in a laboratory approved by an Analyst.

5. The Licensee shall, by **date**, submit to an Analyst for approval a Quality Assurance/Quality Control Plan.

6. The plan referred to in Part B, Item 5 shall be implemented as approved by an Analyst.

C. Reports

1. The Licensee shall, within thirty (30) days following the month being reported, submit to the Board all data and information required by the "Surveillance Network Program" including the results of the approved Quality Assurance Plan.

NORTHWEST TERRITORIES WATER BOARD

Witness **Chairman**

Appendix C: Information Sources

Reference No.	Title/Type of Document/Date
1	March 2008 – IMG-Golder, MGM Energy Corp. Umiak Seismic Program: 2008-2011
2	20 June 2008– Environmental Impact Screening Committee screening decision letter and attachments
3a	14 August 2008 – MGM Response to NEB Information Request #1 (sent by NEB 28 July 2008)
3b	12 September 2008 – MGM Response to NEB Information Request #2 (sent by NEB 4 September 2008)
3c	18 September 2008 – MGM Response to NEB Supplemental Information Request #2.1 (sent by NEB 4 September 2008)
3d	30 September 2008 – MGM Response to NEB Supplemental Information Request #3 (sent by NEB 22 September 2008)
4	1 April 2008 – DFO letter of advice to the Environmental Impact Screening Committee