ENVIRONMENTAL ASSESSMENT REPORT

Name of Applicant: Bluewater Gas Storage, LLC

Date Filed: 01/27/12	**Docket No: CP12-51-000**
Type: Presidential Permit pursuant to Section 3 of the Natural Gas Act, and Part 153 of FERC regulations to construct pipeline facilities for the import and export of natural gas at the United States-Canada international border.	**Cost:** Not Given

Facilities:
Construct and operate pipeline facilities at the United States-Canada international border to replace existing leased facilities. The pipeline facilities consist of 1,500 feet of horizontal directional drilling beneath the St. Clair River in Marysville, Michigan to the U.S. – Canada international border.

Environmental Impact -- Conclusions:

___ **Categorical Exclusion**

___ **Environment Not Involved**

__X__ **Environment Complete**

___ **Deficiency Letter Required**

___ **EA/EIS Required**

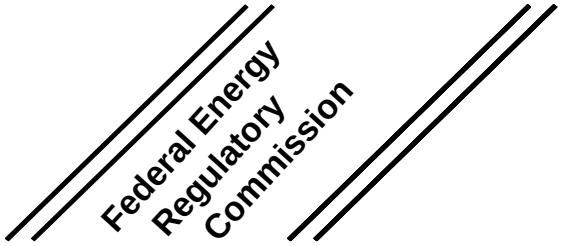
___ **No NOI Required**

___ **NOI Required**

Environmental Considerations or Comments:

See attached environmental assessment.

Prepared by:	**Date:**	**Approved by Branch Chief:**	**Date:**
A.J. Rana	05/15/12	James Martin	05/15/12



Office of
Energy Projects

May 2012

Bluewater Gas Storage, LLC **Docket No. CP12-51-000**

St. Clair River Crossing Replacement Project

Environmental Assessment

Washington, DC 20426

ST. CLAIR RIVER CROSSING REPLACEMENT PROJECT
ENVIRONMENTAL ASSESSMENT

Table of Contents

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

TECHNICAL ACRONYMS

ACHP	Advisory Council on Historic Preservation
ATWS	additional temporary workspace
APE	area of potential effect
API	American Petroleum Institute
BGEPA	Bald and Golden Eagle Protection Act
CFR	Code of Federal Regulations
CH_4	methane
CO	carbon monoxide
dBA	decibel (A-weighted scale)
Discovery Plan	*Plan for Unanticipated Discovery of Historic Properties or Human Remains During Construction*
EI	environmental inspector
HDD	Horizontal Directional Drilling
L_{eq}	equivalent sound level
L_{dn}	day-night sound level
MBTA	Migratory Bird Treaty Act
NAAQS	National Ambient Air Quality Standards
NGA	Natural Gas Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO_x	nitrogen oxides
NOI	*Notice of Intent to Prepare an Environmental Assessment for the Proposed St. Clair River Crossing Replacement Project*
NRHP	National Register of Historic Places
NSA	noise sensitive areas
NWP 12	Nationwide Permit 12 Utility Line Activities
O_3	ozone
Plan	FERC's Upland Erosion Control, Revegetation, and Maintenance Plan
PM	particulate matter
PM_{10}	particulate matter less than 10 microns in diameter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
Procedures	FERC's Wetland and Waterbody Construction and Mitigation Procedures
Project	St. Clair River Crossing Replacement Project
SCPL	St. Clair Pipelines, L.P.
SHPO	State Historic Preservation Office
SO_2	sulfur dioxide
TWS	temporary work space
VOC	volatile organic compound
ybp	years before present

A. PROPOSED ACTION

1.0 INTRODUCTION

On January 27, 2012, Bluewater Gas Storage, LLC (Bluewater), filed an application with the Federal Energy Regulatory Commission (FERC or Commission) in Docket No. CP12-51-000 under Section 3 of the Natural Gas Act (NGA), and Part 153 of the Commission's regulations requesting authorization to construct, own, and operate new natural gas facilities to replace leased capacity at the United States-Canadian international border. The project, referred to as the St. Clair River Crossing Replacement Project (Project or Cross-Border Facilities), would provide for the import and export of up to 300 million cubic feet per day (MMcf/d) of natural gas. Bluewater is likewise seeking a Presidential Permit pursuant to Part 153 of the Commission's regulations authorizing the construction and operation of the proposed Cross-Border Facilities.

Bluewater would construct the United States portion of the U.S. – Canada cross-border pipeline facilities from Marysville, St. Clair County, Michigan to the U.S. – Canada international boundary in the St. Clair River. Concurrently, St. Clair Pipelines L.P. (SCPL) on the Canadian side of the St. Clair River is seeking permission from the Canadian National Energy Board to construct, own, and operate the Canadian portion of the replacement pipeline and associated facilities at the international border. The location of the Cross-Border Facilities is shown on Figure 1.

We[1] prepared this Environmental Assessment (EA) in compliance with the requirements of the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality regulations for implementing NEPA (Title 40 of the Code of Federal Regulations Parts 1500-1508 [40 CFR 1500-1508]), and the Commission's implementing regulations under 18 CFR 380. The EA addresses the potential environmental impacts of the proposed action, assesses reasonable alternatives that would avoid or minimize adverse effects on the environment, and identifies specific mitigation measures, as necessary, to minimize impacts. This EA will be used by the Commission in the process of deciding whether to authorize Bluewater to construct and operate the proposed facilities.

In addition to the proposed facilities, Bluewater would also construct and abandon certain small sections of pipeline facilities pursuant to its NGA Section 7 blanket certificate[2] to facilitate connection with its pipeline header in St. Clair County, Michigan (see Section A - 4.2). These activities would receive automatic authorization pursuant to

[1] We," "us," and "our" refers to environmental staff of the Commission's Office of Energy Projects.

[2] BGS Kimball Gas Storage, LLC and Bluewater Gas Storage, LLC 117 FERC 61,122 (2006) granting Bluewater a blanket certificate under Part 157, Subpart F, of the Commission's regulations (Bluewater Certificate Order)

Part 157 of the Commission's regulations. However, they are described in this EA for purposes of disclosure.

Figure 1. Project Location; Cross Border Facilities.

Figure 1. Project Location.

PURPOSE AND NEED

The Project purpose is to replace the import and export function of a leased pipeline by constructing new pipeline facilities that Bluewater would own and operate. Bluewater currently leases capacity on a pipeline owned by Nova Chemicals owned pipeline to import up to 250 MMcf/day of natural gas at the United States-Canada border under an existing Section 3 Authorization and Presidential Permit. Bluewater states that their lease with Nova Chemicals for use of the existing pipeline will terminate on January 27, 2013, and will not be renewed.

Bluewater states that construction of the new pipeline facilities would avoid an interruption in services to customers and would ensure continuity of import/export service between western Ontario, Canada markets and Bluewater's customers in the Great Lakes market. Although Bluewater is requesting authorization for Project capacity of up to 300 MMcf/d, Bluewater states that the overall capacity of their storage and header system would remain unchanged. Bluewater would vacate the existing Section 3 Authorization and Presidential Permit with respect to the Nova Lease Facilities effective upon the later of (a) January 27, 2013 or (b) the date that both the St. Clair River Crossing Replacement Project and SCPL's related Canadian facilities are placed into service.

3.0 PUBLIC REVIEW AND COMMENT

On February 17, 2012, we issued a *Notice of Intent to Prepare an Environmental Assessment for the Proposed St. Clair River Crossing Replacement Project and Request for Comments on Environmental Issues* (NOI). The NOI was mailed to about 150 entities including federal, state, and local officials; Native American groups; agency representatives; environmental and public interest groups; libraries; and other interested parties.

Written comments were requested from the public on specific concerns about the proposed Project or issues that should be considered during preparation of the EA. Our NOI included an invitation for other federal agencies to participate as cooperating agencies. No other federal agencies elected to participate.

In addition, on February 28, 2012 the Office of Energy Projects staff conducted an onsite environmental review of the Project area to gather data for its environmental analysis. The public was also invited to attend the site meeting/environmental review. During the site environmental review, FERC staff met with Bluewater company representatives, its environmental consultant (Groundwater Associates, LLC), and two local landowners, who expressed concerns regarding the proposed Project dust and noise control during Project construction. We address issue related to fugitive dust mitigation during construction in section B-7.3, and noise issues in section B-7.4.

In response to the NOI, the Commission received two comment letters; Robert Brassell Jr. and Terry L. Whiting expressed their concerns with the potential safety of the Project. We address issues related to pipeline safety in section B-8.0 of this EA.

4.0 PROPOSED FACILITIES

4.1 Cross-Border Facilities (United States portion)

Bluewater would jointly construct with SCPL approximately 3,000 feet of 20-inch-diameter pipeline utilizing the horizontal directional drilling (HDD) method, underneath the St. Clair River. Bluewater would construct approximately 1,500 feet (0.29 mile) of the new pipeline from St. Clair County to the international border and SCPL would concurrently construct approximately 1,500 feet (0.29 mile) of the Canadian portion of the pipeline from the County of Lambton, Ontario to the international border in the St. Clair River. Disturbed acreage within Bluewater's HDD work area would include a total of 2.54 acres of temporary workspace (TWS). Following construction, 0.66 acre would be retained as permanent right-of-way for operation and maintenance of the pipeline facilities.

Bluewater would use existing public and private roads as the principal means of access to construction areas, and would utilize adjacent Enbridge Energy property for ingress and egress. Within St. Clair County, Bluewater proposes to use an existing disturbed, gravel yard in Marysville, Michigan as a contractor's fabrication area and storage yard during construction activities. Temporary land disturbance for the contractor yard would encompass approximately 3.0 acres of land.

Although Bluewater has identified areas where extra workspace would be required, additional or alternative areas could be identified in the future due to changes in site-specific construction requirements. Bluewater would be required to file information on each of those areas for review and approval prior to use.

4.2 Connecting Pipeline Facilities (Blanket Authorization)

To connect the Cross-Border pipeline facilities with Bluewater's existing 20-inch-diameter pipeline header, Bluewater would construct, under its existing NGA Section 7 blanket authorization, approximately 350 feet of new 20-inch-diameter pipeline extending from its pipeline header to the HDD entry point (see Section A-6.0) location along with a new 20-inch-diameter remote controlled valve and 6-inch-diameter vent. Construction would require a 100-foot-wide right-of-way that would temporarily disturb 1.32 acres. Following construction, Bluewater would retain a 50-foot-wide permanent easement resulting in 0.23 acre of permanent disturbance during operation (Figure 2).

LEGEND

- PROPOSED BLUEWATER PIPELINE
- EXISTING PIPELINE
- PROPERTY LINES
- C/L ROAD
- C/L RAILROAD
- SANITARY SEWER LINE
- WATERMAIN
- OHP LINES
- FENCE
- GUARDRAIL
- TREE LINE
- POWER POLE
- SANITARY MANHOLE
- TELEPHONE PEDESTAL
- FIRE HYDRANT
- WATER MANHOLE
- LINE MARKER
- TEST LEAD
- GUARD POST
- VENT PIPE
- GUY ANCHOR
- GAS VALVE
- CULVERT
- PERMANENT EASEMENT
- TEMPORARY EASEMENT
- EXISTING PIPE TO BE REMOVED

Figure 2. Cross-Border Facilities HDD Drill Path and Connecting Pipeline (Blanket Authorization) Facilities.

PROPOSED 20" BLUEWATER PIPELINE
CITY OF MARYSVILLE,
ST. CLAIR COUNTY, MICHIGAN

Bluewater would also abandon by removal approximately 245 feet of existing 20-inch-diameter pipeline and 30 feet of 12-inch-diameter pipeline that currently ties the leased Nova Chemicals facilities to Bluewater's header system. This work would be conducted within an existing right-of-way and would temporarily disturb about 0.08 acre of land that would be restored back to original conditions. Bluewater would also conduct this work under its existing NGA Section 7 blanket authorization.

Also under its existing NGA Section 7 blanket authorization, Bluewater would replace its existing custody transfer measurement and flow control skid (Meter Skid), add a filter separator and increase the size of its existing flow control valve at the Marysville Hydrocarbons, Inc facility (Figure 3) in order to accommodate the requested increase in capacity from 250 MMcf/d to 300 MMcf/d. These modifications would occur on Bluewater's existing permanent easement and would leave approximately 0.29 acres of permanent land disturbance for the establishment of a graveled/grassed pad for operation of these facilities.

LEGEND

- PROPOSED BLUEWATER PIPELINE
- EXISTING PIPELINE
- PROPERTY LINES
- C/L ROAD
- C/L RAILROAD
- SANITARY SEWER LINE
- WATERMAIN
- OHP LINES
- FENCE
- GUARDRAIL
- TREE LINE
- POWER POLE
- SANITARY MANHOLE
- TELEPHONE PEDESTAL
- FIRE HYDRANT
- WATER MANHOLE
- LINE MARKER
- TEST LEAD
- GUARD POST
- VENT PIPE
- GUY ANCHOR
- GAS VALVE
- CULVERT
- PERMANENT EASEMENT
- TEMPORARY EASEMENT
- EXISTING PIPE TO BE REMOVED

Figure 3. Meter Skid Facilities.

PROPOSED 20" BLUEWATER PIPELINE
CITY OF MARYSVILLE,
ST.CLAIR COUNTY, MICHIGAN

5.0 NONJURISDICTIONAL FACILITIES

There are no nonjurisdictional facilities associated with the Project.

6.0 CONSTRUCTION, OPERATION, AND MAINTENANCE PROCEDURES

Bluewater would design, construct, operate, and maintain its proposed pipeline facilities in accordance with the U.S. Department of Transportation (DOT) Minimum Federal Safety Regulations contained in 49 CFR 192, *Transportation of Natural Gas and Other Gas by Pipelines: Minimum Federal Safety Standards*, and other applicable federal, state, and local regulations to ensure adequate protection for the public and to prevent natural gas pipeline accidents or failures.

Construction, restoration, and maintenance would be conducted in accordance with our January 2003 version of the *Upland Erosion Control, Revegetation, and Maintenance Plan* (*Plan*) and *Wetland and Waterbody Construction and Mitigation Procedures* (*Procedures*)[3]. Bluewater states that it has adopted our *Plan* and *Procedures* for the Project's erosion and sedimentation control plan (E&SCP). To protect nearby wetlands, waterbodies and other sensitive resources, Bluewater would implement its Spill Prevention Control and Countermeasures (SPCC) Plan, and the spill prevention and control measures identified in our *Procedures*.

Bluewater would assign an Environmental Inspector (EI) to oversee and document environmental compliance during construction. The EI would be trained prior to beginning work on the Project and would be informed of his/her authority and responsibilities, including: ensuring compliance with applicable federal, state, and local environmental permits; ordering corrective actions; and maintaining construction status reports.

Bluewater anticipates a 12 week drilling and construction schedule once all applicable permits and approvals for the Project have been issued. The Project would employ about 35 temporary construction and inspection personnel. Once constructed, the pipeline facilities would be operated by Bluewater's existing staff.

6.1 Cross-Border Facilities

The 20-inch-diameter cross-border replacement pipeline would be constructed utilizing HDD technology to avoid disruption to the St. Clair River. Bluewater and SCPL

[3] Copies of our Plan and Procedures may be accessed on our website (http://www.ferc.gov/industries/gas/enviro/ guidelines.asp) or copies may be obtained through our Office of External Affairs at 1-866-208-3372.

would coordinate construction efforts, using two drilling rigs to drill pilot holes simultaneously from both the United States side and the Canadian side of the St. Clair River which would meet near the middle (international border) of the St. Clair River. Pipeline segments would be staged and fabricated within SCPL's construction workspace on the Canadian side of the river. Once the pilot hole intersect is complete and reamed to a sufficient diameter, the prefabricated and welded product pipeline would be pulled through the reamed pilot hole.

All activities in Canada would be performed by SCPL. Pipeline segments would be welded by qualified and certified welders and in conformance with applicable Canadian codes and standards as well as U.S. Code of Federal Regulations (CFR) 49 C.F.R. § 195 and American Petroleum Institute (API) 1104 "Standard for Welding Pipelines and Related Facilities" (latest edition). Welds would be inspected visually by a qualified inspector and would be radiographically inspected in conformance with the applicable Canadian requirements and 49 U.S. C.F.R. § 195 standards requirements. The pipeline coating would be visually and mechanically inspected and any faults or scratches would be repaired before it is pulled through the reamed pilot hole. Bluewater states that dredging of the St. Clair River bed would not be required to connect the two pilot hole drill paths or the 20-inch-diameter pipeline assembly

Once the pipeline is pulled through, the pipeline would be hydrostatically pressure tested in accordance with U.S. Department of Transportation (DOT) standards (49 C.F.R. 192).

6.2 Connecting Pipeline Facilities (Blanket Authorization)

Bluewater would install the pipeline using conventional open-trench lay or open-trench push/pull lay methods in accordance with our *Plan* and *Procedures*. Bluewater did request a modification to our *Procedures* to expand the construction workspace through a wetland. We approve this modification as discussed in section B-3.5.1 of this EA. In addition, facilities constructed under the Blanket Authority would comply with section 157.206(b) of our regulations which sets forth standard conditions to protect the environment.

The construction crews would include survey, clearing, grading, trenching, stringing, bending, welding, joint coating, lowering, backfilling, hydrostatic testing, purge and load, dust mitigation, and cleanup and restoration crews. Trenching would be conducted to a depth to allow for a minimum of three feet of soil cover from the top of the pipeline to final land surface after backfilling. Excavated material would be stockpiled next to the trench line on the opposite side of the work area construction right-of-way. After the pipeline is positioned in the trench, the trench would be backfilled with the previously excavated material. A soil mound would be left over the trench to allow for soil settlement, unless otherwise requested by the landowner. Temporary erosion controls would be installed, where necessary, to minimize erosion and would be maintained throughout construction activities until restoration is complete. After

construction and before placing the Project in service, the connecting pipeline facilities would be hydrostatically tested in accordance with the requirements in 49 C.F.R. 192 for natural gas pipelines, individual state permits, and our *Procedures*.

There are five existing pipelines in the proposed pipeline corridor, on property owned by NOVA that would be crossed by Bluewater's connecting pipeline. Bluewater would contact the Michigan one-call system in accordance with its advance notification requirements, and prior to any ground disturbance, representatives of the existing pipeline facilities would be requested to mark their respective lines and, if required be present during construction activities. Bluewater states that mechanical equipment would not be used within fifteen feet of the existing pipelines, without receiving approval from the pipeline company's representatives. The existing pipelines would be exposed by utilizing hydro-vac excavation (vac-hoe) units and when necessary by hand digging. A minimum 24-inch vertical clearance would be maintained between the pipelines, and the pipelines would be crossed at right angles.

6.3 Above-Ground Facilities (Blanket Authorization)

In order to increase the existing capacity of the Marysville Hydrocarbon Meter skid, Bluewater would add a filter separator, increase the size of the existing flow control valve, remove the existing turbine meter tubes, and replace them with ultrasonic meter tubes. Bluewater would also add a new header on the inlet side of the meters and extend the existing header on the outlet side of the meters. The proposed piping changes would extend from the west side of the existing skid to the existing piping on the skid within a previously-disturbed, fenced area on the meter site.

6.4 Cleanup and Restoration

All areas (both the Cross-Border facilities construction work areas and the Blanket Authorization areas) disturbed during construction would be restored. Excess materials, including construction debris would be removed from the right-of-way. Drainage ditches, terraces, roads, and fences disturbed during construction would be restored, at a minimum to their original condition, consistent with any individual landowner agreement. Pre-construction contours would be restored, and pipeline markers and warning signs would be erected at road, stream and other points of awareness. Permanent erosion controls would be installed, as necessary and disturbed areas would be revegetated in accordance with our *Plan*. Any disturbed pavement and other road surfaces damaged during construction would be restored to pre-construction conditions.

7.0 LAND REQUIREMENTS

A total of 0.66 acres of permanent right-of-way disturbance would be required for the operation of the Cross-Border Facilities in order to provide the necessary access to the 20-inch-diameter valve and 6-inch-diameter vent installed on the Bluewater property (Figure 2). A total of 0.52 acres of permanent disturbance would be required for

Bluewater's Blanket Authorization Facilities as summarized in Table 1, below. Material and equipment storage for both construction activities would occur within temporary and additional temporary workspace.

Table 1. Land Requirements for the St. Clair River Crossing Replacement Project.

Project Component	Total Proposed Workspace During Construction	Permanent Area Affected during Operation
HDD workspace and temporary workspace areas	2.54	0.66
345 feet of 20-inch-diameter Connecting Pipeline	1.32	0.23
Marysville Hydrocarbon, Inc. Meter Station (meter Skid)	0.29	0.29
Removal of 245 feet of 20-inch-diameter pipeline	0.08	0
Removal of 30 feet of 12-inch-diameter piping	0.09	0
Contractor Fabrication Area/Temporary Yard	2.99	0
Total	**7.31**	**1.18**

8.0 PERMITS, APPROVALS AND REGULATORY REQUIREMENTS

Bluewater would obtain all necessary permits, licenses, clearances and approvals related to the construction and operation of the St. Clair River Crossing and associated work under its Section 7 Blanket Certificate to connect the U.S. portion of the Cross-Border Facilities to Bluewater's existing pipeline header. These permits are summarized in Table 2, below.

Table 2
Environmental Permits, Approvals, and Consultations

Permit/Approval/Consultation	Administering Agency	Status/Comments
Federal		
Section 3 Authorization and Presidential Permit	FERC	Pending
Section 404 Nationwide Dredge and Fill Permit	U.S. Army Corp of Engineers	Pending
Section 10 permit (Rivers and Harbors Act)	U.S. Army Corp of Engineers	Pending

Table 2
Environmental Permits, Approvals, and Consultations

Permit/Approval/Consultation	Administering Agency	Status/Comments
Section 7 Consultation; Endangered Species Act	U.S. Fish and Wildlife Service	Consultation Complete
Migratory Bird Treaty Act	U.S. Fish and Wildlife Service	Consultation Complete
Section 106 of the National Historic Preservation Act	Bureau of Indian Affairs	Pending
Section 106 of the National Historic Preservation Act	Michigan State Historic Preservation Office (SHPO)	Pending
Section 106 of the National Historic Preservation Act	Michigan Historical Center	Pending
NREPA Part 301 Inland Lakes and Streams/Floodplains/Wetlands Permit	Michigan Department of Environmental Quality	Pending
NPDES – Part 31 Stormwater/Soil Erosion and Sediment Control.	Michigan Department of Environmental Quality	To be submitted 30 days prior to construction.
Part 365, Endangered Species Protection of the Natural Resources and Environmental Protection Act – 451 of the Michigan Public Acts of 1994.	Michigan Department of Natural Resources	Concurrence received 10-11-11. Consultation Complete.
Part 91 Soil/Sediment Control	St. Clair County Health Department	To be submitted 30 days prior to construction.

9.0 FUTURE PLANS AND ABANDONMENT

Bluewater states that it does not have any future plans for expansion or abandonment other than returning the existing leased pipeline to Nova Chemicals upon the in-service date of the Cross-Border Facilities.

B. ENVIRONMENTAL ANALYSIS

1.0 GEOLOGY

1.0 Physiographic Settings and Geologic Conditions

The St. Clair River Crossing Replacement Project is located within the Huron-Lake Border Plain section of the Central Lowland Physiographic province of the Great Lakes Basin in St. Clair County, Michigan (MSU 2008). Within the province, glacial outwash, lacustrine and till material were deposited on top of Paleozoic and Mesozoic (Cambrian through Mississippian) - age sedimentary bedrock in the southern portion of the basin, and on top of Precambrian-age igneous and metamorphic bedrock in the northern portions of the basin (MDEQ 2000a). The glacial materials consist of silts, clays, sand and gravel, and attain a thickness of several hundred feet in the Lower Peninsula of Michigan. In the eastern portion of the Lower Peninsula, along the St. Clair River, glacial along with recent fluvial overburden sediments are underlain by the Devonian-age Bedford Shale bedrock (MDEQ 2000b). The Bedford Shale is a bluish to light gray, silty-shale that becomes sandy in its upper part and, where present has a gradational contact with the overlying Berea Sandstone. The Bedford Shale is commonly 50 to 100 feet thick, thinning and becoming finer-grained to the west, and reaching a maximum thickness of 250 feet in the Saginaw Lake-Border Plain region of north-eastern Michigan (USGS 2012).

1.1 Horizontal Directional Drilling

The proposed HDD is located on the eastern flank of the Michigan Basin, along the St. Clair River. Based on the results of Bluewater's geotechnical investigation, their sub-bottom acoustic profile of the St. Clair River, and published reports, the glacial/fluvial material attains a thickness on the order of 100 to 117 feet on the U.S. side of the St. Clair River, 60 to 65 feet in the St. Clair River channel (Geotechnical Boring RB-1) and 115 to 120 feet on the Canadian side of the river (Morris 2008). The subsurface materials encountered in the geotechnical borings consist of soft to stiff clays with minor sand, silt and gravel overlying shale bedrock. The acoustic profile suggests that the subsurface material below the river bottom consist of clay with cobbles and boulders overlying clay with a unit of sand and gravel. Bedrock encountered in the geotechnical borings consist of shale bedrock and is consistent with published bedrock geologic maps for the area depicting the Bedford Shale (MDEQ 2000b).

The results of Bluewater's geotechnical investigation indicate that the drill path of the proposed HDD is feasible and amenable to drilling, however due to the low shear-strength of soils encountered in the geotechnical borings, there is a high risk for inadvertent return of drilling fluid along the drill path. As such, Bluewater has prepared

an HDD Contingency and Mitigation Plan to monitor, contain, and mitigate the potential affects of an inadvertent release, discussed further in Section B-3.2 below.

1.2 Geologic Hazards

The American Society of Civil Engineers (ASCE) Technical Council on Lifeline Earthquake Engineering defines the 10 percent probability of exceedance in 50 years (475-year return period) as the contingency design earthquake for pipelines. The U.S. Geological Survey forecasts peak ground acceleration (PGA) due to seismic activity for geographical areas and provides seismic hazard mapping for several probabilistic events (USGS, 2011a (2008)).

The USGS seismic hazard mapping for the Cross-Border and connecting pipeline facilities shows a 10-percent probability of experiencing a PGA of 1 to 2 percent in 50 years (475-year return period). A 1- to 2-percent PGA is characterized as light ground shaking with a very small potential for damage (USGS 2011a). Review of the USGS Quaternary Fault and Fold database (USGS, 2011b) did not identify any recent (Holocene-age) faulting in the area of the Project. As such, the Project would not be considered at risk from active seismicity or surficial ground rupture.

The topography of the proposed Project area is generally flat; therefore impacts associated with slope failure and landslides are not anticipated. Likewise, USGS landslide mapping for this part of Michigan is characterized as a moderate susceptibility/low incidence for landslides (USGS 1997.

There are several existing oil and gas wells, and one gas lease in the vicinity (four miles) from the proposed Project. All of the existing wells have either been shut in or are inactive and have been approved for abandonment. As such, land subsidence due to oil and gas exploration and abstraction within the vicinity of the Project is not anticipated. Additionally, there are two active surface mines located approximately 12 and 16 miles northwest from the Project area and there are fourteen liquid petroleum gas (LPG) storage caverns located proximal to the Project area, the nearest at a distance of two miles to the south. Bluewater states that there are no planned subsurface mining proximate to the proposed Project, and as such the Project would not hinder planned mine reclamation or expansion.

Although two of the three physical conditions for soil liquefaction occurs in the project area (lack of cohesive soils, and near-surface groundwater saturation), the low potential for seismic activity renders the Project area as a low potential for soil liquefaction.

None of Bulewater's proposed facilities lie within the mapped 100-year floodplain for the St. Clair River.

1.3 Paleontology

Fossils of mammoths, mastodons, musk ox, and giant beavers are common and have been extracted from the Quaternary-age glacial deposits of Michigan (Paleoportal 2009). The mastodon is designated as Michigan's state fossil because of its abundance. However, because the Cross-Border and connecting pipeline facilities involve limited vertical disturbance over large areas, the potential for disturbance of paleontological resources is low. In the event these resources are discovered during Project activities, Bluewater states that it would immediately halt construction activities until such time as the area can be assessed by qualified personnel.

Given the low probability of geologic hazards within the Project area, and the mitigation measures proposed by Bluewater, we conclude that potential impacts on geological resources, geologic hazards or paleontological resources would be minimal.

2.0 SOILS

Native soil cover over the Cross-Border and connecting pipeline facilities consist of the Allendale-Hoytville complex. Parent depositional material for this soil complex consists of glacio-lacustrine (Allendale) and clayey ablation till (Hoytville). The Allendale soil component makes up 50 percent of the Project area. Slopes for the Allendale soil component are typically 0 to 6 percent, it is poorly drained with a seasonal zone of water saturation at 18 inches during late fall through early spring. The soil does not meet hydric criteria; however it is considered farmland of local importance.

The Hoytville soil component makes up 40 percent of the Project area. Slopes are typically 0 to 2 percent, it is very poorly drained, has a high shrink-swell potential, and is frequently ponded with seasonal zone of water saturation observed at ground surface during winter through early spring. The Hoytville soil is not considered as prime or farmland of local importance.

Soil cover over the proposed contractor's fabrication/temporary equipment storage yard consists of the Wainola and Deford fine sands (57 and 27 percent of the mapped unit, respectively). Slopes are typically 0 to 2 percent for this soil series. The parent material consists of sandy glaciolacustrine material. The soil is somewhat poorly drained, however water does not flood or pond, except for the Deford component. Seasonal high zone of saturation is 0 (Deford component) to 6 inches (Wainola component) during late fall through winter months. The proposed contractor's fabrication/temporary storage equipment storage yard is however, a previously disturbed area where soils have been modified from their original state by historic grading, and gravel placement activities. Bluewater states that permanent impacts would not occur because the location would not be disturbed further, only equipment, construction trailers, and materials would be stored on site and the yard would be returned to its original condition upon completion of construction activities.

To minimize potential soil erosion during construction activities, Bluewater would implement the erosion and sediment control and revegetation measures our *Plan*, and landowner recommendations for re-seeding, as necessary including the installation of temporary erosion controls (silt fencing and sediment barriers). Bluewater would segregate topsoil over the width of the right-of-way to a depth of 12 inches, or actual topsoil depth, within residential and wetland areas. In addition, Bluewater would implement dust abatement measures including spray application of water and/or tackifiers. Soil compaction mitigation, if deemed necessary by the on-site EI would involve plowing, ripping or disking any compacted soils. In areas of a high water table, Bluewater would implement limited dewatering in accordance with the FERC's *Procedures* and any required dewatering discharge permits. Post-construction seeding of previously disturbed areas would be monitored in accordance with the FERC *Plan* and *Procedures* to gauge restoration success.

Based on the limited extent of disturbance and Bluewater's implementation of our *Plan and Procedures* during construction and restoration we conclude that there would be no significant impacts on soils.

3.0 WATER RESOURCES, WETLANDS, AND FISHERIES

3.1 Groundwater

The glacial (overburden) aquifer system is the major aquifer system in the Project area, and is the primary source of water-supply in St. Clair County with the capacity to yield between 70 and 500 gallons per minute (gpm) to individual wells. The glacial aquifer is comprised of Quaternary-age stratified sands, gravel, and ice-contact deposits as well as minor recent alluvium material along streams and rivers. Seasonal (wet-weather) high water table is within one foot of land surface and groundwater in this system is a major source of supply of dry-weather base flow to streams. Although bedrock aquifers are a major source of water supply within the Michigan peninsula, they do not yield sufficient quantities of water to wells within the Project area (MDEQ 2003).

Currently there is no U.S. Environmental Protection Agency (EPA) or state-designated sole-source aquifer (SSA) in Michigan. However, the U.S. EPA is proposing to designate the tri-state Michindoh SSA which comprises nine counties in Michigan, Indiana and Ohio including Michigan's Hillsdale and Lenawee counties located about 125 miles southwest of the Project area. Based on Bluewater's well-data search (CGI 2011) and site reconnaissance, there are no private wells located within the footprint of the Project nor are any located within 150 feet of the Project. The nearest public water supply well is located approximately 2-miles west of the Project area.

3.2 Groundwater Impacts and Mitigation

Project construction would not likely result in significant groundwater impacts because construction of the pipeline and modification to the meter station would involve

shallow, temporary, and localized excavation and horizontal directional drilling. The horizontal directional drilling profile does not penetrate into any formation that could be considered an aquifer and both the entry and exit points are above any local aquifer system. However, typical groundwater depth in the immediate area of construction is expected to be between 0-6 inches below ground surface, which would require dewatering during trench excavation, drilling and pipeline installation activities. Trench dewatering could affect local water table elevations and trench excavation may intersect the water table, locally elevating turbidity in areas of shallow groundwater. These impacts would be minor, temporary, and localized to the construction area. These potential impacts would be avoided or further minimized by the use of construction techniques described our *Plan* and *Procedures*, including restoring the disturbed ground to its natural contours.

Shallow groundwater could be vulnerable to contamination caused by inadvertent surface spills of hazardous materials used during construction. Bluewater has stated it would implement its Spill Prevention Control and Countermeasures (SPCC) Plan which includes preventative measures that would be used to minimize the potential for groundwater impacts associated with an inadvertent spill of fuel, oil, or other hazardous fluids.

Additionally, according to the MDEQ and EPA databases, no known hazardous waste sites are located within one mile of the Project. Therefore, Bluewater does not anticipate encountering previously existing contamination, but would implement it's Unanticipated Hazardous Materials Encounter Plan, and would dispose of or mitigate any hazardous materials uncovered during construction in accordance with applicable federal, state, and local requirements. We have reviewed their Unanticipated Hazardous Materials Encounter Plan and find it to be acceptable. In the event of an unanticipated discovery of hazardous materials, Bluewater's EI, would contact the MDEQ.

While no wells have been identified within 150 feet of the Project, Bluewater has committed to a several procedures if previously unidentified wells are discovered during construction including: installing protective fencing around wellhead(s) in the construction corridor to prevent damage by construction equipment and vehicles; capping the well to prevent deposition of sediment or debris in the well; prohibiting refueling within a 150-foot radius of the wells; providing a temporary source of potable water if the well or system was damaged; and repair or replace any wells that are permanently damaged.

With the implementation of the above construction procedures and mitigation measures, we believe the Project should not result in any significant long-term or permanent impacts on groundwater resources or users of groundwater in the Project area.

3.3 Surface Water Resources

St. Clair County is located within the Northeastern Watersheds/USGS-designated Pine River-Frontal drainage basin (Hydraulic Code (HUC) 040802). The only waterbody crossed by the Project would be the St. Clair River. The St. Clair River is approximately 43.5 miles in length, has a maximum natural depth of 100 ft, a mean depth of 36.1 ft and a surface area of 14.6 mi^2 (MDNR 2011a). Potable water supply to The City of Marysville is derived from a surface-water intake and treatment plant located downstream on the St. Clair River, approximately 2000 feet (approximately 0.4 mile) south of the Project area.

As part of an international agreement with Canada to reduce pollutant discharges to shared water resources in the Great Lakes Region, the St. Clair River is listed as an Area of Concern due to bacteria, heavy metals, and toxic organics, which had come from municipal and industrial discharges, urban and rural runoff, combined sewer overflows (CSOs), and contaminated sediments. According the Michigan Department of Natural Resources and Environment Water Bureau, April 2010 Section 303(d) water quality report, the St. Clair River was listed as not supporting the following designated use categories: both Total and Partial Body Contact Recreation for Escherichia coli due to CSOs; Fish Consumption due to mercury and polychlorinated biphenyl (PCBs) found in fish tissue and PCBs found in the water column; and Other Indigenous Aquatic Life and Wildlife due to PCBs found in the water column (MDNR 2010). While historically polluted due to years of industrial development along the St. Clair River, the Section 303(d) report shows that: total phosphorus concentrations decreased between the 1980s through 2004: chromium and nickel concentrations decreased between 1998 through 2004, zinc and lead increased between 1998 through 2004 (MDNR 2010).

3.4 Waterbody Impacts and Mitigation

The HDD method employs a drill to create a borehole to insert the pipeline under the river, avoiding impacts to the fish species/fisheries, benthic communities, and fauna of the St. Clair River. None of the proposed facilities, including the drill pits, lie within the zone of the mapped 100-year floodplain for the St. Clair River. Bluewater states that they would obtain their drilling water either from a municipal source, trucked to the work site or directly from the St. Clair River. Drilling operations of this magnitude could use upwards of 100,000 gallons of water.

While the purpose of an HDD is to avoid resource impacts, the inadvertent return of drilling fluid into the St. Clair River could impact aquatic resources. Drilling mud my leak through the riverbed along the drill path, or from the immediate area of the mud pits or tanks. The volume of drilling fluid released is dependent on a number of factors, including the size of the fracture, the permeability of the geologic material, the viscosity of the drilling fluid, and the pressure of the hydraulic drilling system. Although drilling mud consists predominantly of natural bentonite clay and water and is non toxic, the

release of drilling mud in large quantities into a waterbody could affect fisheries and other aquatic organisms by causing an increase above the natural-background turbidity of the waterbody and/or by temporarily depositing clay on the river bed.

Bluewater has prepared an HDD Contingency and Mitigation Plan to monitor, contain, and mitigate the potential affects of an inadvertent release. To compensate for the low shear strength of the soils along the drill path, Bluewater would install two small diameter pilot holes that would be drilled simultaneously from both the United States side and the Canadian side of the St. Clair River. Typically, it is the pilot hole drill that is the most likely place to result in significant surface releases due to the high pressure associated with installation of the first hole. By installing two pilot holes simultaneously, the down-hole fluid pressures needed to circulate the drilling fluids out of the hole would be cut approximately in half, mitigating the likelihood of inadvertent surface releases. The HDD operator would monitor the annular drilling fluid pressures during drilling operations. If the HDD operator realizes a substantial increase in the annular drilling fluid pressure or loss of drilling fluid circulation, the operator would immediately notify operations management, the project EI, and Construction Inspectors of the assumed position of the drill tool to inspect for evidence of an inadvertent return.

If inadvertent releases were to occur, Bluewater has prepared an Inadvertent Return Containment, Response, and Notification Plan to address mitigation. Bluewater has stated in its March 22, 2012 submittal that the release would be immediately detected by the loss of circulation pressure and drilling fluid, and minimized by temporarily ceasing drilling operations while the fluid is thickened in order to resume drilling work without releases into the St. Clair River. In its March 2012 Revised HDD Contingency Plan (HDD Plan), however, Bluewater stated that HDD operations would not be suspended unless the inadvertent drilling returns pose a threat to public health and safety. However the HDD Plan does not define the amounts of drilling fluid released that would meet that criteria. Furthermore, the Marysville Water Filtration Plant (Plant) uptake is located approximately 0.4 mile downstream from the Project. According to its March 22, 2012 submittal, Bluewater has stated that a drilling fluid release from the Project would reach the intake in approximately four minutes. Its HDD Plan acknowledges the duration of an inadvertent release could last approximately four hours. We note that while the St. Clair River's depth (approximately 35 feet deep), width (approximately 2,200 feet) and velocity (7 miles per hour) would quickly dilute and dissipate short duration inadvertent releases of drilling fluid, longer duration and larger releases could impact the operations of the Plant in terms of increased turbidity. Consequently, **we recommend that:**

Prior to construction, Bluewater should file a revised HDD Contingency Plan for the review and approval by the Director of OEP to include a commitment to:

a) advise a point of contact (POC) at the Marysville Water Filtration Plant, prior to the start of drilling operations, and immediately notify

the POC in the event of an inadvertent release, or suspected release; and

b) notify the Michigan Department of Environmental Quality (MDEQ), and any other appropriate agency regarding the inadvertent release of drilling fluid into the St. Clair River.

Other threats to the waterbody can occur from the introduction of chemical contaminants, such as fuels and lubricants used for construction equipment, into waterways resulting in decreased water quality. Bluewater has stated that it would need to refuel and/or store hazardous materials, chemicals, fuel, or lubricating oils within 100 feet of the waterbody and wetlands and would provide secondary containment and minimization techniques to prevent any spills that could impact those resources. With the use of secondary containment and EI approval, refueling within 100 feet of the waterbody and/or wetlands is allowed by the FERC *Procedures*. Additionally, Bluewater has stated that it would follow its SPCC Plan in the event of a spill.

If the waterbody crossing would be completed in accordance with the construction and mitigation methods outlined in Bluewater's HDD Contingency Plan with the recommended modification above, the FERC *Procedures*, Bluewater's SPCC Plan, and any site specific measures that may be required by state permitting agencies or the COE, we conclude that impacts on the waterbody would be minor and temporary.

3.5 Wetlands

A small portion of Bluewater's 20-inch-diamter connecting pipeline (approximately 80 feet) and the 245 feet of 20-inch-diameter pipeline abandonment are located within an emergent wetland designated as SCW2 (see Figures 2 and 4). This wetland area also contains five existing pipelines. Construction of the 350 feet of connecting pipeline and abandonment of the existing pipeline would result in approximately 0.28 acres of wetland impact which would be restored during the restoration phase of the Project. Bluewater would conduct all construction and restoration activities in this wetland in accordance with our *Procedures.* Bluewater has applied with the U.S. Army Corp of Engineers (COE) for a Section 404 Nationwide Dredge and Fill permit. As of the date of this EA permit approval from the COE is pending.

The Procedures include measures to minimize impacts to wetlands and expedite restoration. These measures include restoration of the ground surface to pre-construction grades, limiting the construction right-of-way, and post-construction monitoring of restoration success. With the use of our Procedures, we believe that impacts on wetlands would be minimal and temporary.

3.5.1 Alternative Measures to the FERC Procedures

Bluewater states that the majority of its proposed connecting pipeline facilities (Blanket Authorization) lie within tightly-constrained areas, and as such requests FERC

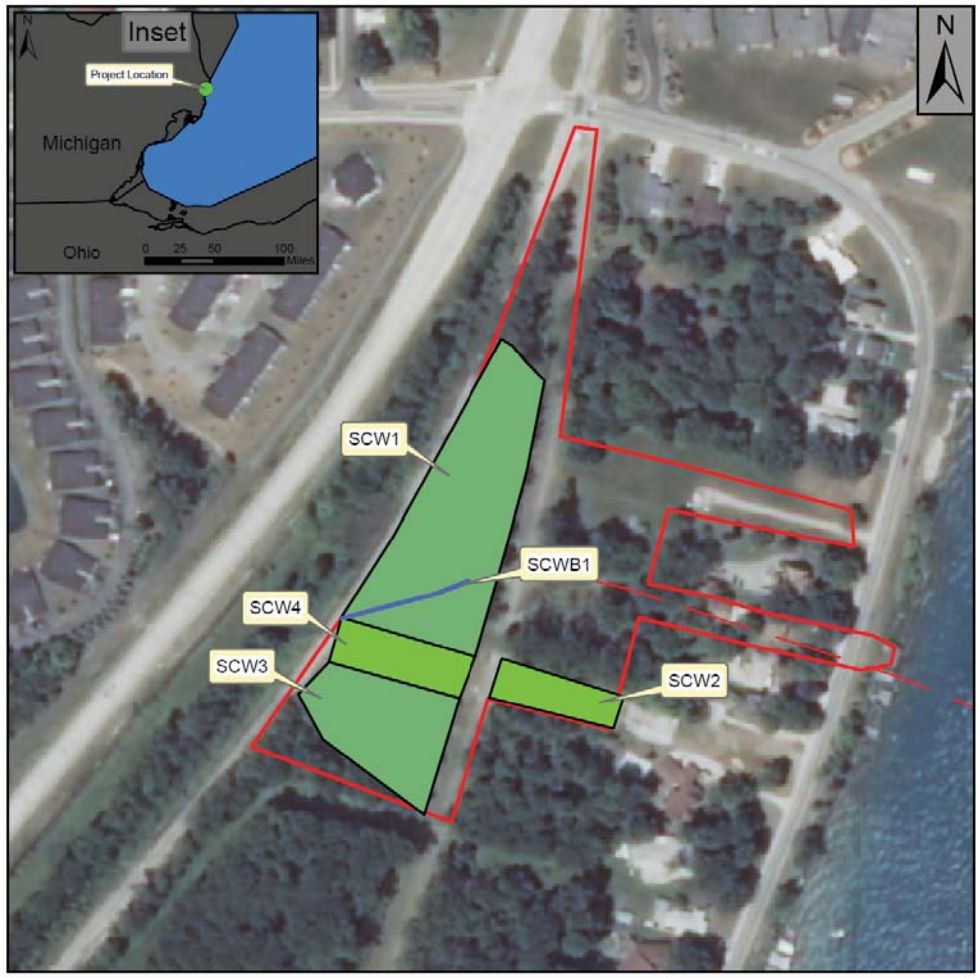
approval to waive the 75- right-of-way in wetland areas as per our *Procedures*, and use a 100-foot-wide right-of-way within its proposed connecting pipeline righ-of-way/wetland area SCW2 (see Figures 2 and 4). Based on our review, we have determined that the proposed modification to our *Procedures* appear reasonable and adequately justified.

3.6 Hydrostatic Test Water

Bluewater would verify the integrity of both the Cross-Border pipeline and the connecting pipeline before placing it into service by conducting hydrostatic testing in accordance with U.S. Department of Transportation (DOT) standards (49 C.F.R. 192). Hydrostatic testing of the Cross-Border pipeline would begin from the United States side. These tests involve filling the pipeline with water, pressurizing it, and then checking for pressure losses due to pipeline leakage. Approximately 75,000 gallons of water would be required for testing and would be supplied by a commercial or municipal source or from a surface water source (St. Clair River) pending applicable state and local permits and authorizations. If the test water is withdrawn from the St. Clair River, intake structures would be screened to minimize impacts to fisheries.

Bluewater has applied to the MDEQ to discharge the hydrostatic test water into the St. Clair River at two locations east of River Road. If applicable, the water would be tested prior to filling the pipelines and tested again upon discharge to verify that any contaminants in the discharge would be limited to state standards. If contaminants are present that prevent discharge into the St. Clair River, the hydrostatic test water would be treated to remove contaminants prior to discharge. If Bluewater does not receive permission to discharge into the St. Clair River, the hydrostatic test water would be discharged through hay bale structures upon completion of testing. When discharging through upland structures, Bluewater would implement best management practices included in the FERC *Procedures* and would comply with the environmental conditions of its National Pollutant Discharge Elimination System – Wastewater Discharge General Permit, and any additional parameters deemed necessary by the MDEQ for overland discharge. If withdrawals and discharges are conducted according to FERC *Procedures* and in compliance with NPDES and other applicable permit requirements and DOT pipeline safety regulations, the impacts of hydrostatic testing are not expected to be significant.

Figure 4. Wetlands/Waterbody Map



Saint Clair River Crossing Project Wetlands
St. Clair County, Michigan

Proposed HDD Underneath St. Clair River
Study Boundary
Emergent Wetland
Waterbody
Forested Wetland

0 0.035 0.07
Miles
1:2,500

3.7 Fisheries Resources

The St. Clair River, Lake St. Clair, and the Detroit River combine to form the connecting channel between Lake Huron and Lake Erie, and the five waterbodies are collectively identified by MDNR as the St. Clair System. For decades, the St. Clair System has supported recreational fisheries as fish movement through these waters is unimpeded. While large declines in sport fishing over the past 20 years has been observed across other areas of the Great Lakes, sport fishing on the St. Clair System has remained relatively stable, generating revenue in excess of $36.4 million annually (MDNR 2011a). The Michigan Natural Resources Commission (NRC) and the MDNR have the authority and responsibility to protect and manage the fish and wildlife resources of the state of Michigan.

Fisheries in the St. Clair River are based on self-sustaining populations of muskellunge, smallmouth bass, walleye, white bass, and yellow perch, with walleye and yellow perch accounting for 94 percent of the total harvest, reflecting their importance in the sport fishery (MDNR 2012). While walleye have traditionally been the dominate species in the St. Clair River, major ecological changes during the late 1980s such as zebra mussels to filter the water and pollution control that reduced nutrient inputs, has led to an increase in aquatic macrophytes that have provided spawning and nursery habitat for smallmouth bass and muskellunge that have become more abundant in the River (MDNR 2011a). Additionally, the St. Clair River and Lake St. Clair support the largest population of lake sturgeon in Michigan, the only species of sturgeon endemic to the Great Lakes. Although listed as state threatened throughout most of its native range, including Michigan, MDNR has instituted conservative catch and release sport fishing regulations for the species consistent with increased protection for lake sturgeon across the state (MDNR 2011b). Table 3 lists the fisheries found in the St. Clair System.

Table 3: Fisheries of the St. Clair River System

Alewife (*Alosa pseudoharengus)*	Quillback (*Carpiodes cyprinus*)
Bluntnose minnow (*Pimephales notatus)*	Rainbow smelt (*Osmerus mordax)*
Brown trout (*Salmo trutta)*	Rainbow trout *(Oncorhynchus mykiss)*
Channel catfish (*Ictalurus punctatus*)	Rock bass (*Ambloplites Rupestris*)
Chinook salmon (*Oncorhynchus tshawytscha)*	Round goby (*Neogobius melanostomus*)
Coho salmon (*Oncorhynchus kisutch)*	Sand shiner (*Notropis stramineus)*
Common carp (*Cyprinus carpio*)	Silver lamprey (*Ichthyomyzon unicuspis*)
Emerald shiner (*Notropis atherinoides)*	Silver redhorse (*Moxostoma anisurum)*

Table 3: Fisheries of the St. Clair River System	
Freshwater drum (*Aplodinotus grunniens)*	Smallmouth bass (*Micropterus dolomieu*)
Johnny darter (*Etheostoma nigrum*)	Spottail shiner (*Notropis hudsonius)*
Lake sturgeon (*Acipenser fulvescens*) [1]	Trout-perch (*Percopsis omiscomaycus*)
Largemouth bass (*Micropterus salmoides*)	Walleye (*Stizostedion vitreum*)
Logperch (*Percina caprodes*)	White bass (*Morone chrysops*)
Muskellunge (*Esox masquinongy)*	White perch (*Morone Americana)*
Northern pike (*Esox lucius)*	White sucker (*Catostomus commersoni)*
Shorthead redhorse (*Moxostoma macrolepidotum*)	Yellow perch (*Perca flavescens*)
Pumpkinseed sunfish (*Lepomis gibbosus*)	
Notes: 1: Michigan State Threatened Species; Sources: MDNR 2011a, MDNR 2012	

The St. Clair River would be crossed by HDD. If successful, an HDD crossing would result in no impact on fisheries. However, a potential leak of drilling fluids, or frac-out, under the river during drilling could disrupt bottom sediments in a localized area near the location where the discharge occurs. The release of drilling fluid could cause localized increases in sediment loads and could fill interstitial gaps in the streambed, smothering habitat for benthic invertebrates, larval fish, and eggs. Juvenile and adult fish are expected to swim away from a potential frac-out. To reduce the potential severity of a frac-out, Bluewater has prepared its HDD Contingency Plan.

The likelihood of a direct spill of petroleum or other toxic products into the St. Clair River from construction is unlikely given that the HDD mud-circulation pit is approximately 450 feet away from the river bank and on the opposite side of River Road from the river. Therefore, if the waterbody crossing would be completed in accordance with the construction and mitigation methods outlined in its HDD Contingency Plan with the modifications above, the FERC *Procedures*, and any site specific measures that may be required by state permitting agencies or the COE, we conclude that impacts on the fisheries would be minor and temporary.

4.0 WILDLIFE AND VEGETATION

4.1 Existing Vegetation Resources, Impacts and Mitigation

Located in primarily a residential area bordering the St. Clair River, the Project would affect vegetated wetlands, upland forest and open areas. The upland forested areas are dominated by green ash (*Fraximus pennsylvanica*), paper birch (*Betula papyrifera*), swamp white oak (*Quercus bicolor*), red maple (*Acer rubrum*), American elm (*Ulmus americana*), silver maple (*Acer saccharinum*), and eastern cottonwood (*Populus*

deltoides). Open areas consists of non-agricultural fields and open land in the early stages of succession. According to an October 11, 2011 letter from the MDNR, there are no unique, sensitive, or state listed vegetative species located in the area. Federally listed species are discussed in Section B.4.4.

The Project would permanently remove approximately 0.61 acre of upland forest and would temporary impact 0.86 acre of open land during construction. Clearing of vegetation (trees, brush and other obstructions) would be conducted within the boundaries of the right-of-way. Clearing would be restricted, where possible, to only the amount of right-of-way necessary for the trenching and pipeline installation. Marketable timber would be cut into lengths and stacked along the right-of-way. Unusable timber would be disposed of in accordance with applicable local regulations and landowner preference. If necessary, tree stumps would be removed from the trench line by bulldozer or pulled from areas containing water.

After construction, the forest would be allowed to revegetate within the construction the right-of-way and extra work spaces; however, the impact in these areas would be long term. Permanent impacts on forest lands would occur within permanent right-of-way where ongoing vegetation maintenance during operations would preclude the re-establishment of trees. In open lands, vegetation would be removed from the construction area; however, these impacts are expected to be short-term.

Bluewater has stated that it would restore preconstruction contours, and in accordance with the FERC *Plan*, reseed disturbed areas in accordance with recommendations obtained from either the local soil conservation authority or as requested by the landowner. Revegetation efforts would continue until revegetation is successful.

Therefore, if the vegetative restoration would be completed in accordance with our *Plan*, we conclude that impacts on vegetation would be minimal.

4.2 Wildlife Resources and Impacts

The wildlife habitats within the Project area consist of inland emergent wetlands, forested wetlands (not directly impacted by the Project), and lowland hardwoods. No sensitive wildlife habitats would be affected by the Project.

Impacts to wildlife populations would result primarily from increased noise and habitat disruption; displacing, stressing, injuring or leading to mortality of wildlife unable to leave the immediate area of impact. Disruption of any habitat type could cause alterations in breeding, feeding, nesting, and rearing activities of species that actively use those habitats. However, the majority of the wildlife in the Project area are mobile and have the ability to relocate to avoid construction activities. Once construction activities cease and the right-of-way is restored, wildlife would re-colonize the area. No long-term affects on wildlife would occur as there is suitable habitat adjacent to the work area and the construction workspace is very limited.

4.3 Migratory Birds

Migratory birds are protected under the Migratory Bird Treaty Act ([MBTA] -16 U.S. Code 703-711) and Bald and Golden Eagles are additionally protected under the Bald and Golden Eagle Act ([BGEPA] – 16 U.S. Code 668-668d). Executive Order (EO) 13186 (66 FR 3853) directs federal agencies to identify where unintentional take is likely to have a measurable negative effect on migratory bird populations and to avoid or minimize adverse impacts on migratory birds through enhanced collaboration with the United States Fish and Wildlife Service (FWS). EO 13186 states that emphasis should be placed on species of concern, priority habitats, and key risk factors, and that particular focus should be given to addressing population-level impacts.

On March 30, 2011, the FWS and FERC entered into a Memorandum of Understanding (MOU) that focuses on avoiding or minimizing adverse impacts on migratory birds and strengthening migratory bird conservation through enhanced collaboration between the Commission and the FWS. This voluntary MOU does not waive legal requirements under the MBTA, Bald and Golden Eagle Protection Act, the Endangered Species Act, the Natural Gas Act, or any other statutes and does not authorize the take of migratory birds.

The Project is located in an area crossed by both the Mississippi and Atlantic Flyway routes for migratory birds. While both flyways begin in northern Canada, the Mississippi Flyway extends south to the Louisiana, Mississippi and northern Florida coasts, and the Atlantic Flyway shifts to the east, extending along the Atlantic seaboard to the Caribbean. Approximately 40 percent of all North American migrating waterfowl and shorebirds use the Mississippi Flyway. The Project is located in FWS identified Bird Conservation Region 12 and table 4 lists the birds of conservation concern in that region.

Table 4
Migratory Birds of Conservation Concern Potentially in the Project Area

Pied-billed Grebe
Horned Grebe (nb)
American Bittern
Bald Eagle (b)
Peregrine Falcon (b)
Yellow Rail
Solitary Sandpiper (nb)
Upland Sandpiper
Whimbrel (nb)
Hudsonian Godwit (nb)
Marbled Godwit (nb)
Red Knot (*rufa* ssp.) (a) (nb)
Buff-breasted Sandpiper (nb)
Short-billed Dowitcher (nb)
Black Tern
Common Tern

Table 4 Migratory Birds of Conservation Concern Potentially in the Project Area
Red-headed Woodpecker
Olive-sided Flycatcher
Wood Thrush
Golden-winged Warbler
Canada Warbler
Henslow's Sparrow
Rusty Blackbird
Note: (a) ESA candidate, (b) ESA delisted, (nb) non-breeding in this BCR

Construction activities may have minor, short-term impacts on birds in the immediate vicinity of the Project area. Migratory birds could experience mortality, injury or stress due to the removal or disturbance of nests and other foraging and breeding habitat. The greatest potential to impact migratory birds would be the avoidance of the construction area due to the increased activity level and noise generation. Construction could occur during a portion of the nesting season, which could result in the mortality of eggs and young birds that have not yet fledged. Fragmentation effects are not expected due to the location within and adjacent to existing rights-of-way.

In a January 13, 2012 response from the FWS to Bluewater regarding the potential for migratory birds to be impacted by the Project, FWS stated that they did not have any concerns with potential impacts on migratory birds. We concur

4.4 Threatened and Endangered Species

Federal agencies are required under section 7 of the Endangered Species Act (ESA), as amended, to ensure that any actions authorized, funded, or carried out by the agency would not jeopardize the continued existence of a federally listed endangered or threatened species, or result in the destruction or adverse modification of the designated critical habitat of a federally listed species. As the lead federal agency authorizing the Project, the Commission is required to consult with the FWS and/or National Oceanic and Atmospheric Administration (NOAA) Fisheries to determine whether federally-listed endangered or threatened species or designated critical habitat are found in the vicinity of the Project, and to determine the proposed action's potential effects on those species or critical habitats. No listed species under the ESA protection of NOAA Fisheries occur in the Project area.

In a November 29, 2011 letter to the FWS, Bluewater, acting as the Commission's non-federal representative, initiated informal consultation with the FWS, identifying four ESA listed species (Table 5) that could be potentially located in the Project area. Bluewater biologists surveyed for individuals and their suitable habitat and none were found, determining that the Project would have *no effect* on the listed species. Impact to

the ESA candidate species Red Knot is discussed in section 2.2, above. FWS concurred with the determination in a letter dated December 6, 2011. We also concur.

Table 5 ESA Listed Species Potentially Located in the Project	
ESA Species	**ESASpecies Status**
Eastern prairie fringed orchid (*Platanthera leucopheae*)	Threatened
Indiana bat (*Myotis sodalis)*	Endangered
Rayed Bean (*Villosa Fabalis)*	Endangered
Snuffbox (*Epioblasma triquetra)*	Endangered
Red Knot (*rufa* ssp.)	Candidate

5.0 LAND USE

The land use category being affected by the construction of proposed Project facilities is described as open space, upland forest, and palustrine emergent wetlands (Figure 4). The topography of the site is generally flat. A summary of temporary and permanent land requirements for construction and operation of the Project is presented below in Table 6.

Table 6. Land Requirements for the St. Clair River Crossing Replacement Project.		
Project Component	**Total Proposed Workspace During Construction**	**Permanent Area Affected during Operation**
HDD workspace and temporary workspace areas	2.54	0.66
345 feet of 20-inch-diameter Connecting Pipeline	1.32	0.23
Marysville Hydrocarbon, Inc. Meter Station (meter Skid)	0.29	0.29
Removal of 245 feet of 20-inch-diameter pipeline	0.08	0
Removal of 30 feet of 12-inch-diameter piping	0.09	0
Contractor Fabrication Area/Temporary Yard	2.99	0
Total	**7.31**	**1.18**

Nearly 95 percent of the overall Project land use consists of residential land, and previously disturbed pipeline right-of-way. The remaining 5 percent is characterized as shrub/canopy. Bluewater has acquired the property at 1060 River Road (the location of its Proposed HDD entry point and pull-back operations) and plans to maintain the property for a graveled access road for operation of the Cross-Border facilities (pipeline valve and vent). Bluewater states that it would conduct pre- and post-HDD inspections documenting building conditions at neighboring residences (1050, 1070 and 1100 River Road) upon receipt of permission from the landowners and Bluewater has provided a Fugitive Dust Mitigation Plan to minimize dust-related impacts on residents (see Section 7.3) and would deploy secondary noise (sound) barriers during construction (see Section 7.4). Following construction, Bluewater would construct a visual screen surrounding the completed Cross-Border facilities. Specifically, Bluewater would construct an eight-foot high security fence with 4-foot-tall (at the time of planting) conifer bushes separated 2.5 feet apart on the south, east and north side of the fenced area.

Bluewater's Blanket Authorization facilities (350 feet of 20-inch-diameter connecting pipeline) and temporary construction workspace/access areas would traverse through three residential properties to access and connect to the Cross-Border facilities (HDD) workspace. The HDD entry point is located about 200 feet from the nearest residence, however, Bluewater's wokspace for the HDD drill path, and their proposed access road from River Road to the HDD drill point is less than 50 feet from adjacent residences (see Figure 2).

Bluewater has not provided any information which addresses specific construction measures for assuring safety and security for residences located within 50 feet of proposed construction work areas. Therefore we recommend that:

Prior to construction Bluewater should revise its construction alignment sheets to indicate the installation of safety fencing between construction work areas and any residences located within 50 feet.

Bluewater has identified the palustrine emergent and palustrine forested wetlands as possible waterways of the United States and has entered into consultation with the MDEQ and the U.S. Army Corp of Engineers for a jurisdictional determination and permitting requirements. Additionally, the Project would affect the Coastal Zone of Michigan, which extends a minimum of 1,000 feet from the high water mark of the St. Clair River. The Coastal Zone Management Act (CZMA) requires that all applicants for any federal license or certificate that affects the coastal zone with a federally-approved coastal zone management plan certify that the project is consistent with that plan. Bluewater states that it is currently working to secure the necessary authorizations with the MDEQ. Because Bluewater has not secured the necessary coastal zone authorizations, **we recommend that:**

Prior to receiving written authorization from the Director of OEP to commence construction of Project facilities, Bluewater should file with the

Secretary documentation that is has received all necessary federal and state authorizations regarding the coastal zone management plan.

No recreation, public interest, or special use lands are located within 0.25 mile of the proposed Project. No national or state wild and scenic rivers, designated scenic areas, or lands included in the National Wild and Scenic Rivers System are located within 0.25 mile of the proposed Project.

6.0 CULTURAL RESOURCES

Bluewater provided us with information, analyses, and recommendations, as allowed by the ACHP's regulations for implementing Section 106 at 36 CFR Part 800.2(a)(3), and outlined in our *Guidelines for Reporting on Cultural Resources Investigations for Pipeline Projects* (18 CFR Part 380.12(f)).

6.1 Consultations

We sent copies of our NOI for this project to a wide range of stakeholders, including the Advisory Council on Historic Preservation (ACHP), the U.S. Department of the Interior National Park Service (NPS), Michigan State Historic Preservation Officer (SHPO), and Indian tribes that may have an interest in the project area. The NOI contained a paragraph about Section 106 of the NHPA, and stated that we use the notice to initiate consultations with the SHPO, and to solicit their views and those of other government agencies, interested Indian tribes, and the public on the project's potential effects on historic properties.

In addition to the FERC's notification process, Bluewater's consultant, Commonwealth Cultural Resources Group, Inc. (CCRG) separately contacted the SHPO, and Indian tribes and Native American organizations that might attach cultural or religious significance to cultural resources in the project area (Table 7). On November 25, 2011, Esther Helms responded for William Johnson, Curator for the Saginaw Chippewa Indian Tribe of Michigan, stating they did not have any knowledge of Indian traditional cultural properties, sacred sites, or significant properties within the project area. However, if Native American human remains or burial objects were encountered, their office would participate in consultation.

CCRG, on the behalf of Bluewater, notified the SHPO about the project in letters dated October 24, 2011 and December 13, 2011, designating the area of potential effect (APE), and seeking comments on the potential of the project to impact archaeological resources. Bluewater filed a letter dated January 9, 2012 from the SHPO to the COE stating that the project would not have effects on historic properties. In a letter filed April 3, 2012, Bluewater explained that the SHPO addressed their letter to the COE assuming the COE was the lead federal agency for the Project. In a letter dated April 3, 2012, the SHPO clarified their correspondence and findings.

Table 7. Indian Tribes and Native American Organizations Contacted		
Contacted by the FERC Through the NOI Issued February 16, 2012	**Contacted by CCRG on behalf of Bluewater**	**Tribal Responses**
Nottawaseppi Huron Band of Pottawatomi	Letter dated October 21, 2011	None to date.
Saginaw Chippewa Indian Tribe of Michigan	Letter dated October 21, 2011	November 25, 2011
Match-e-be-nash-she-wish Band of Pottawatomi Indians of Michigan	Letter dated October 21, 2011	None to date.

6.2 Overview and Inventory Results

CCRG conducted background research at the SHPO office and the State of Michigan Library and Archives. One archaeological site was recorded within a one mile radius of the project, as well as one previously conducted archaeological survey. CCRG suggested that despite the nearby presence of this site, the lack of topographic relief in the project area provides only minimal potential for prehistoric archaeological sites and some potential for historic era archaeological sites.

A Phase I archaeological survey was conducted on October 6 and 7, 2011 and December 17, 2011. The APE was examined via surface reconnaissance or judgmentally placed shovel tests at 50 foot intervals, depending on feasibility and visibility. CCRG conducted investigations along the right-of-way and at proposed workspace areas. Most of the project area has been disturbed by previous pipeline construction, grading and paving, residential construction, and underground utilities. No archaeological sites were identified.

In addition, the area was assessed through shovel testing and visual inspection for the need of deep testing within the proposed HDD pad and CCRG established that the location did not have a potential for intact buried archaeological deposits.

Given the lack of features or artifact concentrations and the general presence of extensive disturbances, CCRG recommended no further archaeological investigations.

6.3 Unanticipated Discovery Plan

Bluewater included an "Unanticipated Discovery Plan" (Discovery Plan) as Appendix 4C attached to the Environmental Reports included with its application to the FERC. In a March 1, 2012 data request, the FERC staff requested that the Discovery Plan be revised. On March 22, 2012, Bluewater filed a revised Discovery Plan that addressed our comments on the original version and provided a copy to the SHPO for comments on March 12, 2012. In a letter dated March 21, 2011, the SHPO concurred with the revised Discovery Plan.

6.4 Compliance with the NHPA

The SHPO did not object with the 10.5 acre definition of the APE when providing comments on CCRG's submitted data and letters. No traditional cultural properties or properties of religious or cultural importance to Indian tribes have been identified in the APE by Bluewater, its consultants, the SHPO, or Indian tribes contacted by the applicant and its consultants. The FERC staff and SHPO agree that the project would have no effects on historic properties.

7.0 AIR QUALITY AND NOISE

7.1 Air Quality

Construction and operation of the Project can potentially have an effect on local and regional air quality. Federal and state air quality standards have been designed to protect human health and the environment from airborne pollutants. The USEPA has developed National Ambient Air Quality Standards (NAAQS) for criteria air pollutants such as nitrogen oxides (NO_x) and carbon monoxide (CO), ozone (O_3), sulfur dioxide (SO_2), and inhalable particulate matter ($PM_{2.5}$ and PM_{10}). $PM_{2.5}$ includes particles with an aerodynamic diameter less than or equal to 2.5 microns, and PM_{10} includes particles with an aerodynamic diameter less than or equal to 10 microns. The NAAQS were set at levels the USEPA believes are necessary to protect human health and welfare.

Air Quality Control Regions (AQCRs) are areas for which implementation plans describe how ambient air quality standards would be achieved and maintained. If measured ambient air pollutant concentrations for an AQCR remain below the NAAQS criteria, the area is considered to be in attainment with the NAAQS. States are required to implement and enforce the NAAQS through State Implementation Plans (SIP), which are approved by the USEPA. The State of Michigan implements its SIP through the Michigan Department of Environmental Quality. The Michigan Ambient Air Quality Standards for criteria pollutants are the same as the federal standards.

Bluewater's Project is located in St. Clair County within the Metro Detroit-Port Huron Intrastate AQCR. This AQCR is designated as nonattainment for $PM_{2.5}$ and "in attainment" or "unclassified" with respect to all other criteria pollutants.

7.2 Federal Air Quality Requirements

The Clean Air Act 42 U.S.C. 7401 et seq., as amended in 1977 and 1990, and 40 CFR Parts 50 through 99 are the basic federal statutes and regulations governing air pollution in the United States. We have reviewed the following federal requirements and determined that they are not applicable to the proposed Project because there are no

permanent sources of operational emissions and thus would have no long-term air quality impacts.

- Prevention of Significant Deterioration (PSD) permitting;
- Non-Attainment NSR (NA-NSR) permitting;
- Title V permitting;
- New Source Performance Standards Requirements
- National Emission Standard for Hazardous Air Pollutants for Source Categories and Maximum Achievable Control Technologies; and
- The Greenhouse Gas Reporting Rule.

7.3 Conformity of General Federal Actions

In accordance with the General Conformity Rule codified in 40 CFR Part 51, Subpart W and Part 93, Subpart B, a federal agency must make a general conformity determination for all federal actions in non-attainment or maintenance areas where the total direct and indirect emissions of a non-attainment pollutant or its precursors exceed threshold levels established by the regulations. The project, as noted above is within the Metro Detroit-Port Huron Intrastate AQCR which is designated as nonattainment for $PM_{2.5}$ and "in attainment" or "unclassified" with respect to all other criteria pollutants. The applicability threshold under The General Conformity for $PM_{2.5}$ is 100 tons per year (tpy) of emissions of $PM_{2.5}$. As can be seen in Table 5 below, the emission of $PM_{2.5}$ is estimated to be below 100 tpy. Thus a General Conformity Analysis is not required.

Impacts and Mitigation

Air quality can be affected by both construction and operation of the proposed pipeline compressors and associated equipment. During construction, a temporary reduction in the local ambient air quality could result from fugitive dust and emissions generated by construction equipment

Emissions associated with construction activities generally include: 1) exhaust emissions from construction equipment; 2) fugitive dust emissions associated with vehicle movement in the project area; and 3) fugitive dust associated with trenching, backfilling, and other earth moving activities.

Construction activities associated with the proposed Project would result in localized emissions during construction. The majority of the construction equipment uses diesel engines; a few pieces of equipment use gasoline engines. Fugitive dust emissions associated with construction activities would depend on equipment size, and the moisture content, composition, and volume of soils during construction.

On February 28, 2012 we received comments regarding dust impacts during construction. Bluewater has provided a Fugitive Dust Mitigation Plan to minimize dust-

related impacts on residents that includes mitigation measures to control dust propagation including: application of water or other non-toxic dust suppressant on areas that are cleared or graded, cleaning construction equipment, covering dirt piles, misting sprays, and cleaning track-out point on roadways.

Table 8 shows the estimated total criteria and pollutant emissions anticipated during proposed Project construction of the Cross-Border (HDD) and Blanket Authorization facilities.

Table 8. Estimated Project Construction Emissions (tons)				
NO_x	CO	VOC	$PM_{10}/PM_{2.5}$	CO_{2e}
12.6	6.8	1.08	1.6	840

Given the temporary nature of the proposed Project and implementation of the Dust Mitigation Plan, emissions associated with the construction phase would not result in a significant impact on local or regional air quality.

7.4 Noise

Noise quality can be affected both during construction and operation of pipeline projects. The magnitude and frequency of environmental noise may vary considerably over the course of the day, throughout the week, and across seasons, in part due to changing weather conditions and the effects of seasonal vegetative cover. Two measures to relate the time-varying quality of environmental noise to its known effect on people are the 24-hour equivalent sound level (L_{eq}) and day-night sound level (L_{dn}). The L_{eq} is the level of steady sound with the same total (equivalent) energy as the sound of interest, averaged over a 24-hour period. The L_{dn} is the L_{eq} plus 10 decibels (dB) on the A-weighted scale (dBA) added to nighttime sound which accounts for people's greater sensitivity to nighttime sound levels (between the hours of 10 p.m. and 7 a.m.). The A-weighted scale is used because human hearing is less sensitive to low and high frequencies than mid-range frequencies. The human ear's threshold of perception for noise change is considered to be approximately 3 dBA; 6 dBA is clearly noticeable to the human ear, and 9 dBA is perceived as a doubling of noise.

In 1974, the EPA published its *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*. This document provides information for state and local governments to use in developing their own ambient noise standards. The EPA has determined that an Ldn of 55 dBA protects the public from indoor and outdoor activity noise interference. The Commission's regulations require that a new compressor stations and other facilities not exceed this level at noise sensitive areas (NSA). NSAs include residences, schools, hospitals, churches, and similar uses. An L_{dn} of 55 dBA is equivalent to a continuous noise level of 48.6 dBA. For comparison, normal speech at a distance of three feet averages 60 – 70 dBA L_{eq}.

On February 28, 2012 we received comments regarding noise impacts during construction. Construction equipment would be operated on an as-needed basis. While individuals in the immediate vicinity of the construction activities would experience an increase in noise, this effect would be temporary and local. Nighttime noise is not expected to increase during construction because most construction activities would be limited to daytime hours, with the exception of HDD operations. Blasting would not be required as part of the proposed Project.

The primary construction activity is the HDDs crossing of the St. Clair River The Commission considers the day/night average sound level or L_{dn} of 55 dBA, or if the noise impact is above 55 dBA Ldn, an increase of 9 dB or greater as a reference criterion for evaluating the impact of temporary construction activities.

The nearest NSA to the HDD is a residence located approximately 200 feet from the HDD entry point. Existing noise measurements were gathered in the area on November 16 and 17, 2011. The existing ambient noise levels and the resulting impacts are detailed in Table 9.

The existing noise levels on site, as measured by Bluewater's noise contractor were in excess of 55 dBA L_{dn} due to the proximity to waterway traffic on the St. Clair River and vehicular traffic on the nearby Busha Highway. Estimated unmitigated noise levels from drilling activity would exceed 65 dBA L_{dn} at NSAs two, three and six. Bluewater has proposed mitigation to ensure that the noise impacts would not have a significant impact on the local residents. Bluewater has proposed to install temporary 15-foot-tall sound barriers to mitigate noise during drilling activity. Table 8 below summarizes the noise impacts resulting at the nearest NSAs from the St Clair River HDD. In considering the steep decrease in potential noise impacts, we find the mitigation methods to be suitable to reduce the noise impacts below significance at the NSAs.

Table 9. Noise Impacts from St Clair River HDD

NSA	Distance and Direction	Existing Noise (L_{dn}, dBA)	Unmitigated Noise Impact (L_{dn}, dBA)	Mitigated Noise Impact Noise Wall (L_{dn}, dBA)	Temporary Noise Increase with Noise Mitigation (dBA)
1	400 feet South	56.8	63.9	58.5	1.7
2	200 feet SE	56.8	65.8	58.6	1.8
3	250 feet East	56.9	66.9	58.4	1.5
4	400 feet NE	56.9	64.9	58.4	1.5
5	600 feet NNE	60.2	62.3	60.7	0.5
6	675 feet WNW	68.3	68.5	68.5	0.2

Based on the temporary and local nature of the proposed Project, and the mitigation proposed to reduce noise during HDD operations, the noise impacts associated with the proposed Project would not be significant.

8.0 RELIABILITY AND SAFETY

The transportation of natural gas by pipeline involves some risk to the public in the event of an accident and subsequent release of gas. The greatest hazard is a fire or explosion following a major pipeline rupture. Methane, the primary component of natural gas, is colorless, odorless, and tasteless. It is not toxic, but is classified as a simple asphyxiate, possessing a slight inhalation hazard. If breathed in high concentration, oxygen deficiency can result in serious injury or death.

The aboveground facilities associated with the project must be designed, constructed, operated, and maintained in accordance with the DOT Minimum Federal Safety Standards in 49 CFR Part 192. The regulations are intended to ensure adequate protection for the public and to prevent natural gas facility accidents and failures.

The DOT pipeline standards are published in Parts 190-199 of Title 49 of the CFR. For example, Part 192 of 49 CFR specifically addresses natural gas pipeline safety issues, prescribes the minimum standards for operating and maintaining pipeline facilities, including compressor station design, emergency shutdowns and safety equipment (sections 192.163-192.173). Part 192 also requires a pipeline operator to establish a written emergency plan that includes procedures to minimize the hazards in a natural gas pipeline emergency.

The operator must also establish a continuing education program to enable customers, the public, government officials, and those engaged in excavation activities to recognize a gas pipeline emergency and report it to appropriate public officials.

Bluewater's construction and operation of the Project would represent a minimum increase in risk to the public and we are confident that with the options available in the detailed design of Bluewater's facilities, that they would be constructed and operated safely.

9.0 CUMULATIVE IMPACTS

Cumulative impacts may result when the environmental effects associated with a project are superimposed on, or added to, either temporary (construction-related) or permanent (operation-related) impacts associated with past, present, or reasonably foreseeable projects or activities. Although the individual impacts of each project might not be significant, the cumulative impacts of multiple projects could be significant. The direct and indirect impacts of the St. Clair River Crossing Replacement Project are described in the preceding sections of this EA.

Prior and/or planned construction activities identified from Bluewater's consultation with the Director of Community Development - Assistant City Manager of the City of Marysville, consists of two projects that could pose potential cumulative impacts are summarized on Table 10 and discussed below:

Table 10. Past, and Future Planned Construction Projects in the vicinity of the St. Clair River Crossing Replacement Project		
	Prior Project	**Future Project**
Project	Enbridge Energy, Limited Partnership	NOVA Chemical Mariner West Project
Location	St. Clair River between Marysville, Michigan and Sarnia, Ontario	St. Clair River between Marysville, Michigan and Sarnia, Ontario
Timeframe	Completed in 2011	Proposed 2013 Construction Schedule
General Scope	Replaced a 3,450 foot section of its 30-inch-diameter crude oil pipeline underneath the St. Clair River using HDD technology.	Provide pipeline infrastructure to enable the delivery of ethane to NOVA Chemicals in Sarnia, Ontario.

Enbridge Energy (Enbridge) completed a 3,450-foot replacement of its 30-inch-diameter crude oil pipeline underneath the St. Clair River between Marysville, Michigan and Sarnia, Ontario during 2011. This was accomplished by the use of an HDD approximately 500 feet south of the St. Clair River Crossing Project. Since Enbridge's construction schedule did not overlap with that of the proposed Project, and due to the distance between the two construction areas, cumulative impacts to geologic or water resources, cultural resources, or land use are not anticipated.

As discussed, Bluewater and SCPL have been notified that their respective leases would terminate on January 27, 2013. NOVA terminated the leases in order to use the existing river pipeline crossing the St. Clair River as part of their Mariner West Project. The purpose of the Mariner West Project is to provide the necessary pipeline infrastructure to enable the delivery of ethane to NOVA Chemicals in Sarnia, Ontario. The ethane would be shipped from western Pennsylvania by Sunoco Logistics to Marysville, Michigan and would connect into the existing NOVA pipeline crossing on the St. Clair River. Bluewater understands that NOVA plans to begin converting the existing pipeline from natural gas service to liquid service immediately upon termination of Bluewater's lease in January 2013.

Additionally, we expect that SCPL's portion of the Cross-Border facilities' construction on the Canadian side of the St. Clair River would have a similar construction footprint and construction impacts as Bluewater's activities occurring in Marysville, Michigan. Labor resources, area infrastructure and local services are sufficient to support multiple construction projects in Marysville, Michigan. Also, any potential impacts resulting from each separate construction activities on either side of the river would be temporary and minor.

The NOVA Mariner West project and the current Bluewater/SCPL proposed project both involve the use of heavy equipment that would generate emissions of air contaminants, fugitive dust during construction, and temporary impacts to noise receptors in the vicinity of the project(s). However, construction of these projects would not occur concurrently. During construction of each individual project, elevated levels of ambient pollutants are likely to occur, and noise impacts would be localized and would attenuate

quickly as the distance from the noise source increases.

Construction of these projects would result in temporary air emissions, that are anticipated not likely to significantly affect long-term air quality in the region, and noise impacts, would be limited due to the short term duration of the projects. We do not expect that operation of the proposed NOVA Mariner West project would contribute cumulatively to existing air emissions since the installation of additional pumping equipment (if planned) would not significantly affect long-term air quality in the region.

Based on the minimal impacts associated with the proposed Project, we conclude that construction and operation of the proposed Project would only represent a small cumulative effect added to past, present, or reasonably foreseeable future projects in the area.

C. ALTERNATIVES

In preparing this EA, we considered several alternatives to the proposed St. Clair River Cross Border facilities (proposed action). These include the No-Action Alternative; and Route Alternatives.

The following evaluation criteria were used for to determine whether an alternative would be environmentally preferable:

- technical feasibility and practicality;
- significant environmental advantage over the proposed action; and
- ability to meet the project's stated objectives.

As discussed in Section A-2.0, Bluewater is proposing the Project to replace its leased pipeline facilities by constructing new pipeline that Bluewater would own and operate, in order to avoid interruption of its import/export services of natural gas to customers after its current lease with Nova Chemicals expires in January 2013. The interconnection between Bluewater's storage facilities in the United States and the facilities owned by SCPL in Canada must be maintained without interruption in order for Bluewater to continue to serve the needs of its customers in the Great Lakes market area and for SCPL to continue to provide security of supply for Ontario industrial customers and to provide an ongoing source of supply for the growing Sarnia, Ontario market.

1.0 NO-ACTION ALTERNATIVE

Under the no-action alternative Bluewater would not construct the Project. While this alternative would eliminate the potential impact to the environment, Bluewater's stated need for the Project would not be met. Therefore, this alternative would not satisfy the third criterion above that considers the alternative's ability to meet the purpose and need for the Project.

2.0 ROUTE ALTERNATIVES

The proposed 20-inch-diameter pipeline would be constructed beneath the St. Clair River bed utilizing HDD technology. The location of the proposed Project maximizes the use of Bluewater's existing right-of-way, and adjacent Enbridge Energy property for ingress and egress. Pipeline crossing alternatives could consist of constructing the pipeline on the riverbed, constructing an aerial-type of crossing or utilizing an existing river crossing structure such as nearby bridges.

Construction of the pipeline on the St. Clair River bed or by constructing an aerial-type crossing would impede commercially-necessary as well as recreational boat traffic

along the river. Further, in-stream work would generate additional impacts on fisheries. Additionally, the nearest existing river crossing structure is the Bluewater (I-69 / Canadian highway 402) bridge crossing the St. Clair River approximately five miles north of the proposed Project area. Construction of the project utilizing this existing crossing would result in about five miles of disturbance new, permanent right-of-way through a relatively congested residential and commercial area, resulting in a greater impact to both the natural environment and to landowners along the route. Finally, we received no suggested routes from stakeholders. Consequently, we identified no route alternatives that were environmentally preferable.

D. CONCLUSIONS AND RECOMMENDATIONS

Based on the environmental analysis, we conclude that approval of this proposal would not constitute a major federal action significantly affecting the quality of the human environment. We recommend the Commission Order contain a finding of no significant impact and include the mitigation measures listed below as conditions to any Authorization the Commission may issue. We believe these measures would further mitigate environmental impacts associated with construction activities for the proposed Project.

1. Bluewater shall follow the construction and mitigation measures described in its application and supplements (including responses to staff data requests) and as identified in the EA, unless modified by the Order. Bluewater must:

    a. request any modification to these procedures, measures, or conditions in a filing with the Secretary of the Commission (Secretary);
    b. justify each modification relative to site-specific conditions;
    c. explain how that modification provides an equal or greater level of environmental protection than the original measure; and
    d. receive approval in writing from the Director of the Office of Energy Projects (OEP) before using that modification.

2. The Director of OEP has delegated authority to take whatever steps are necessary to ensure the protection of all environmental resources during construction, abandonment, and operation of the project. This authority shall allow:

    a. the modification of conditions of the Order; and
    b. the design and implementation of any additional measures deemed necessary (including stop-work authority) to assure continued compliance with the intent of the environmental conditions as well

as the avoidance or mitigation of adverse environmental impact resulting from project construction, abandonment, and operation.

3. **Prior to any construction or abandonment of facilities,** Bluewater shall file an affirmative statement with the Secretary, certified by a senior company official, that all company personnel, environmental inspectors (EIs), and contractor personnel will be informed of the EI's authority and have been or will be trained on the implementation of the environmental mitigation measures appropriate to their jobs **before** becoming involved with construction and restoration activities.

4. The authorized facility locations shall be as shown in the EA. **As soon as they are available, and before the start of construction**, Bluewater shall file with the Secretary any revised detailed survey maps and alignment sheets at a scale not smaller than 1:6,000 with station positions for all facilities approved by the Order. All requests for modifications of environmental conditions of the Order or site-specific clearances must be written and must reference locations designated on these maps/sheets.

   Bluewaters's exercise of eminent domain authority granted under Natural Gas Act (NGA) section 7(h) in any condemnation proceedings related to the Order must be consistent with these authorized facilities and locations. Bluewater's right of eminent domain granted under NGA section 7(h) does not authorize it to increase the size of its natural gas pipeline to accommodate future needs or to acquire a right-of-way for a pipeline to transport a commodity other than natural gas.

5. Bluewater shall file with the Secretary detailed maps/sheets and aerial photographs at a scale not smaller than 1:6,000 identifying all facility relocations, and staging areas, pipe storage yards, new access roads, and other areas that would be used or disturbed and have not been previously identified in filings with the Secretary. Approval for each of these areas must be explicitly requested in writing. For each area, the request must include a description of the existing land use/cover type, documentation of landowner approval, whether any cultural resources or federally listed threatened or endangered species would be affected, and whether any other environmentally sensitive areas are within or abutting the area. All areas shall be clearly identified on the maps/sheets/aerial photographs. Each area must be approved in writing by the Director of OEP **before construction in or near that area**.

   This requirement does not apply to extra workspace allowed by our Upland

Erosion Control, Revegetation, and Maintenance Plan and/or minor field realignments per landowner needs and requirements which do not affect other landowners or sensitive environmental areas such as wetlands.

Examples of alterations requiring approval include all facility location changes resulting from:

a. implementation of cultural resources mitigation measures;
b. implementation of endangered, threatened, or special concern species mitigation measures;
c. recommendations by state regulatory authorities; and
d. agreements with individual landowners that affect other landowners or could affect sensitive environmental areas.

6. **Within 60 days of the acceptance of the Authorization and before construction or abandonment begins**, Bluewater shall file an Implementation Plan with the Secretary for review and written approval by the Director of OEP. Bluewater must file revisions to the plan as schedules change. The plan shall identify:

a. how Bluewater would implement the Horizontal Directional Drilling (HDD), pipeline construction, and abandonment by removal procedures and mitigation measures described in its application and supplements (including responses to staff data requests), identified in the EA, and required by the Order;
b. how Bluewater would incorporate these requirements into the contract bid documents, construction contracts (especially penalty clauses and specifications), and construction drawings so that the mitigation required at each site is clear to onsite construction and inspection personnel;
c. the number of EIs assigned, and how the company would ensure that sufficient personnel are available to implement the environmental mitigation;
d. company personnel, including EIs and contractors, who would receive copies of the appropriate material;
e. the location and dates of the environmental compliance training and instructions Bluewater would give to all personnel involved with construction and restoration (initial and refresher training as the project progresses and personnel change);
f. the company personnel (if known) and specific portion of Bluewater's organization having responsibility for compliance;
g. the procedures (including use of contract penalties) Bluewater will follow if noncompliance occurs; and

h. for each discrete facility, a Gantt or PERT chart (or similar project scheduling diagram), and dates for:

1) the completion of all required surveys and reports;
2) the environmental compliance training of onsite personnel;
3) the start of HDD activities, pipeline construction and activities associated with the abandonment by removal of facilities; and
4) the start and completion of restoration.

7. Beginning with the filing of its Implementation Plan, Bluewater shall file updated status reports with the Secretary on a biweekly basis until all HDD activities, pipeline construction, and abandonment by removal, and restoration activities are complete. On request, these status reports will also be provided to other federal and state agencies with permitting responsibilities. Status reports shall include:

a. an update on Bluewater's efforts to obtain the necessary federal authorizations;
b. the construction status of the project, work planned for the following reporting period, and any schedule changes for work in other environmentally-sensitive areas;
c. a listing of all problems encountered and each instance of noncompliance observed by the EI during the reporting period (both for the conditions imposed by the Commission and any environmental conditions/permit requirements imposed by other federal, state, or local agencies);
d. a description of the corrective actions implemented in response to all instances of noncompliance, and their cost;
e. the effectiveness of all corrective actions implemented;
f. a description of any landowner/resident complaints which may relate to compliance with the requirements of the Order, and the measures taken to satisfy their concerns; and
g. copies of any correspondence received by Bluewater from other federal, state, or local permitting agencies concerning instances of noncompliance, and Bluewater's response.

8. **Prior to receiving written authorization from the Director of OEP to commence construction of any project facilities**, Bluewater shall file with the Secretary documentation that it has received all applicable authorizations required under federal law (or evidence of waiver thereof).

9. Bluewater must receive written authorization from the Director of OEP **before placing the project into service**. Such authorization will only be granted following a determination that rehabilitation and restoration of the facility sites and other areas affected by the project are proceeding satisfactorily.

10. **Within 30 days of placing the authorized facilities in service**, Bluewater shall file an affirmative statement with the Secretary, certified by a senior company official:

    a. that the facilities have been constructed and abandoned in compliance with all applicable conditions, and that continuing activities will be consistent with all applicable conditions; or
    b. identifying which of the Authorization conditions Bluewater has complied with or will comply with. This statement shall also identify any areas affected by the project where compliance measures were not properly implemented, if not previously identified in filed status reports, and the reason for noncompliance.

11. **Prior to Construction of the Cross-Border facilities,** Bluewater shall file with the Secretary, for the review and written approval by the Director of OEP a commitment to:

    a. advise a point of contact (POC) at the Marysville Water Filtration Plant, prior to the start of drilling operations, and immediately notify the POC in the event of an inadvertent release, or suspected release;
    b. notify the Michigan Department of Environmental Quality (MDEQ), and any other appropriate agency regarding the inadvertent release of drilling fluid into the St. Clair River; and
    c. revise its construction alignment sheets to indicate the installation of safety fencing between construction work areas and any residences located within 50 feet.

12. **Prior to receiving written authorization from the Director of OEP to commence construction of Project facilities**, Bluewater should file with the Secretary documentation that is has received all necessary federal and state authorizations regarding the coastal zone management plan.

APPENDIX A

LIST OF PREPARERS

LIST OF PREPARERS

Rana, Anthony – Environmental Project Manager, Geology, Soils, Water Resources

B.S., Geology, New Jersey City University, 1984
Graduate Studies, Hydrogeology and Geochemistry, Oklahoma State University, 1988
M.S. International Development, Tulane University Fall 2012

Cefalu, Janine – Vegetation, Fish, Wildlife, and Threatened and Endangered Species

Masters of Environmental Studies, 2005, The Evergreen State College
B.A., International Relations, 1996, San Francisco State University

Howard, Eric – Cultural Resources

B.A., Anthropology, University of Tennessee, 1992
M.A., Anthropology, University of Tennessee, 1997

Tomasi, Eric– Air Quality, Noise, and Safety

B.S. Aerospace Engineering, Boston University, 1994
Graduate Studies Environmental Engineering, University of Florida

APPENDIX B

REFERENCES CITED

REFERENCES CITED

Center for Geographic Information (CGI) 2011. Michigan Geographic Data Library: Drinking Water Wells. Accessed at: http://www.mcgi.state.mi.us/mgdl/?rel=thext&action=thmname&cid=2&cat=Drinking+Water+Wells

Godt, J.W., 1997. Digital Compilation of Landslide Overview Map. United States Geological Survey (USGS) Open-File Report 97-289. Accessed at: http://landslides.usgs.gov/learning/nationalmap/

Michigan Department of Environmental Quality (MDEQ) 2000a. Quaternary Geology of Michigan 1982. Accessed at: http://www.michigan.gov/documents/deq/1982_Quaternary_Geology_Map_301467_7.pdf

MDEQ 2000b. Bedrock Geology of Michigan 1987. accessed at: http://www.michigan.gov/documents/deq/1987_Bedrock_Geology_Map_301466_7.pdf

MDEQ 2003. Michigan Groundwater Maps. Michigan Groundwater Inventory and Mapping Project; Michigan Public Act 148. Accessed at: http://www.egr.msu.edu/igw/GWIM%20Figure%20Webpage/index.htm

MDEQ 2011a. Michigan Geologic Maps. Accessed at: http://www.michigan.gov/deq/0,4561,7-135-3307_3331-9562--,00.html

MDEQ 2011b. Locations – Oil & Gas Wells – Download Database. Accessed at: http://www.michigan.gov/deq/0,4561,7-135-3311_4111_4231-97870--00.html

MNDR 2010. Michigan Department of Natural Resources and Environment Water Bureau (MDNR), Water Quality And Pollution Control In Michigan 2010 Sections 303(D), 305(B), And 314 Integrated Report, MI/DEQ/WB-10/001, http://www.michigan.gov/deqwater, Accessed April 9, 2012

MDNR 2011a. Michael V. Thomas and Gary L. Towns, Summary of Creel Survey Results for the St. Clair River, Lake St. Clair, and the Detroit River, 2002–05, TR2011-1, State Of Michigan Department Of Natural Resources, Fisheries Division, April 2011

MDNR 2011b. Michael V. Thomas and Gary L. Towns, Michigan's St. Clair System Lake Sturgeon Fishery: Results of an Angler Postal Survey, TR2011-2, Michigan Department Of Natural Resources Fisheries Division, April 2011

MDNR 2012. Michael Thomas and Todd Wills, Status Of The Fisheries In Michigan Waters Of Lake Erie And Lake St. Clair 2011, Michigan Department Of Natural Resources Fisheries Division, March 22, 2012

Michigan State University (MSU) 2007. Lower Peninsula Bedrock Geology. Accessed at: http://www.geo.msu.edu/geogmich/images/bedrock-age-lower-peninsula.pdf

MSU 2008. Physiographic Regions and Unique Places. Accessed at: http://www.geo.msu.edu/geogmich/phy-regions.html

Milstein, Randall L., 1987. Bedrock Geology of Southern Michigan. Geological Survey Division, Michigan Department of Natural Resources, map scale 1:500,000

Morris, T., 2008. Synthesis of Information on Quaternary Geology in the Vicinity of the St. Clair River. Accessed at: http://pub.iugls.org/en/St_Clair_Reports/Sediment/SD-11.pdf

Paleoportal 2009. The Paleontology of North America: Michigan, U.S. Accessed at: http://www.paleoportal.org/kiosk/sample_site/state_29.html

United States Environmental Protection Agency (EPA) 2012. Clean Water Act Section 303. Accessed at: http://water.epa.gov/lawsregs/guidance/303.cfm

USGS 2007: Beth, A. Apple and Howard W. Reeves, 2007, Summary of Hydrogeologic Conditions by County for the State of Michigan. U.S. Geological Survey Open-File Report 2007-1236, 78 p.

United States Geological Survey (USGS) 2011a. Earthquake Hazards Program. CEUS PGA 10 percent/ 50 Years, 2008. Accessed at: http://earthquake.usgs.gov/hazards/products/conterminous/2008/maps/ceus/ceus.10pc50.pga.jpg

USGS 2011b. Earthquake Hazard Program, Quaternary Fault and Fold Database. Accessed at: http://geohazards.usgs.gov/qfaults/map.php

USGS 2012. Mineral On-Line Spatial Data – Bedford Shale. Accessed at: http://tin.er.usgs.gov/geology/state/sgmc-unit.php?unit=MIDbd;0

WAG 2006 Northeastern Watersheds Watershed Advisory Group (WAG), St. Clair County's Northeastern Watersheds Watershed Management Plan, November 2006, website: http://www.cis.stclaircounty.org/Watershed_Mgmt_Plan/Chapter_1_Watershed_Profile.pdf, Accessed April 9, 2012

Document Content(s)