

United States Steel Corporation – Minnesota Ore Operations  
Keetac Expansion Project  
Keewatin, Minnesota

Water Supply Contingency Plan for the City of Nashwauk

**Purpose:** This Agreement is entered by the City of Nashwauk and United States Steel Corporation - Minnesota Ore Operations (“U. S. Steel”) to describe the measures that will be taken to ensure maintenance of the water supply to the City of Nashwauk at the level of production and quality that would have existed absent the proposed groundwater appropriation for the Keetac Expansion Project.

**Background:** U. S. Steel intends to expand operations at the U. S. Steel Keewatin Taconite Facility under a project known as the Keetac Expansion Project (the “Project”). The Project will involve extraction of iron ore from the Biwabik Iron Formation at depths that will require dewatering of mine pits in various phases over the life of the project (the “Dewatering Activities”). The Biwabik Iron Formation also represents an important aquifer for the area and is currently utilized by the City of Nashwauk (“City”) as the City’s source of potable water. A connection may exist between the water levels in nearby mine pits and the existing City wells although the degree of connectivity and the future effects of mine pit dewatering on the aquifer are uncertain.

The primary risk to the City’s water supply from the Dewatering Activities results from the potential for water levels in existing wells dropping below the level required for normal operation of the well. A secondary risk involves potential changes in water quality from altered groundwater flow patterns due to dewatering activities.

Development and implementation of the Project will take place over several years. Sufficient time exists for monitoring the resources in question and to develop an effective plan of action, if required.

**Existing Facilities:** Nashwauk currently utilizes two wells, designated as Wells 3 and 4, as sources of potable water. Both wells are constructed to draw water from the Biwabik Iron Formation (“BIF”). Water use has ranged from approximately 45 to 65 million gallons per year in recent years. The City’s water supply system also includes basic treatment, disinfection and distribution facilities.

**Monitoring Plan:** Since the degree of connectivity between the proposed Dewatering Activities and the existing wells cannot be predicted with certainty, a Monitoring Plan shall be implemented to establish existing or baseline conditions and to determine the existence and extent of any effects of the Dewatering Activities. The monitoring data will be used to determine whether mitigative measures should be implemented and also to assist in determining the appropriate response actions. The Monitoring Plan includes observation of water levels at nearby mine pits, observation wells and the City Wells, as well as water quality monitoring at the City’s existing supply wells. Monitoring activities required by this agreement shall commence as soon as practical after execution of this agreement. Information will then be collected quarterly and summarized annually for review by the parties.

As part of this plan, U. S. Steel intends to install a 6-inch observation well into the BIF aquifer at a location generally between the City and the proposed Keetac project. The observation well is intended to facilitate water level measurements in the portions of the BIF aquifer used as a source of water supply. It is anticipated that the well will extend through permeable portions of the Lower Cherty member or to a depth of approximately 520 feet. The exact location and depth of the well will be determined based on conditions observed in the field. U. S. Steel agrees to allow the City to sample and analyze the observation well at any time they deem necessary. This sampling and analysis will be conducted at the expense of the City of Nashwauk.

U. S. Steel will be responsible for monitoring water levels at the following points: Mesabi Chief Pit, St. Paul Pit, Carliz Pit, LaRue pit complex and at the proposed observation well to be constructed in the BIF Aquifer. U. S. Steel will also be responsible for sampling Nashwauk Wells 3 and 4 for baseline water quality including

general chemistry and dissolved mineral constituents. Pressure transducers and data loggers will be used for water level measurements at these monitoring points.

The City of Nashwauk agrees to maintain their wells in good working condition and will provide to U. S. Steel on an annual basis available information concerning the condition of the wells, water levels and the quality of water pumped.

On February 15, 2011 and on February 15<sup>th</sup> of each subsequent year during the term of this agreement, U. S. Steel will prepare a report for the previous calendar year that contains: a summary of the data collected during the previous year, a description of any changes to the monitoring network, any recommended changes to the monitoring network and a determination as to any effects of the Dewatering Activities on the City of Nashwauk's well water supply.

**Mitigation:** If it is determined that the Dewatering Activities have adversely impacted the production or quality of the Nashwauk water supply, U. S. Steel will immediately notify the City, the Minnesota Department of Natural Resources and the Minnesota Department of Health. U. S. Steel and the City, along with the Minnesota Department of Natural Resources and Minnesota Department of Health as appropriate, will determine the appropriate response actions to mitigate those adverse impacts. Depending on the nature and severity of the impacts the response actions could range from increased monitoring or additional water treatment to development of a new water source.

**Funding:** U. S. Steel will be responsible for funding the monitoring activities and response actions required by this agreement. If response actions taken under this agreement are eligible for grant programs for water system improvements, the City shall pursue funding from those programs. U. S. Steel will reimburse the City for the cost of grant writing that is associated with this part of this agreement. Funds received by the City through such programs will be used to offset U. S. Steel's costs for response actions under this agreement.

**Term:** This Agreement shall be effective upon execution by the parties and may be terminated at any time by agreement of the parties. This agreement will terminate not later than the date of the termination of the Dewatering Activities.

**Disputes:** This Contingency Plan may be amended at any time by agreement of the parties. In the event that the parties cannot agree on the cause of any adverse impacts to the Nashwauk water supply or the appropriateness of a proposed response action nothing in this agreement shall prevent the parties from utilizing the Minnesota Department of Natural Resources dispute resolution process provided for in MN Rules 6115.0730 – Well Interference Problems Involving Appropriation.

The undersigned parties agree to the terms and conditions of this Contingency Plan:

**For the City of Nashwauk:**

By: William Hendricks William Hendricks  
Signature Name

Its: Mayor 5/1/2009  
Title Date

**For United States Steel Corporation - Minnesota Ore Operations:**

By: Michael S. Rhoads Michael S. Rhoads  
Signature Name

Its: Plant Manager Project Mgr 5/1/2009  
Title Ketchic Expansion Date

United States Steel Corporation – Minnesota Ore Operations  
Keetac Expansion Project  
Keewatin, Minnesota

Water Supply Contingency Plan for the City of Keewatin

**Purpose:** This Agreement is entered by the City of Keewatin and United States Steel Corporation - Minnesota Ore Operations (“U. S. Steel”) to describe the measures that will be taken to ensure maintenance of the water supply to the City of Keewatin at the level of production and quality that would have existed absent the proposed groundwater appropriation for the Keetac Expansion Project.

**Background:** U. S. Steel intends to expand operations at the U.S. Steel Corporation Keewatin Taconite Facility under a project known as the Keetac Expansion Project (the “Project”). The Project will involve extraction of iron ore from the Biwabik Iron Formation at depths that will require dewatering of mine pits in various phases over the life of the project (the “Dewatering Activities”). The Biwabik Iron Formation also represents an important aquifer for the area and is currently utilized by the City of Keewatin as the City’s source of potable water. A connection may exist between the water levels in nearby mine pits and the existing City wells. The degree of connectivity and the future effects of mine pit dewatering on the aquifer are uncertain.

The primary risk to the City’s water supply from the Dewatering Activities results from potential for water levels in existing wells dropping below the level required for normal operation of the well. A secondary risk involves potential changes in water quality from altered groundwater flow patterns due to dewatering activities.

Development and implementation of the Keetac project will take place over several years. Sufficient time exists for monitoring the resources in question and to develop an effective plan of action, if required.

**Existing Facilities:** Keewatin has three wells constructed in the Biwabik Iron Formation (BIF) and currently uses two as sources of potable water. Water use has increased in recent years to approximately 65 million gallons per year. Wells 1 and 3, located within the city, are currently utilized as production wells and Well 2, located adjacent to the Carlz Pit, is currently not in service. The City’s water supply system also includes basic treatment, disinfection and distribution facilities.

**Monitoring Plan:** Since the degree of connectivity between the proposed Dewatering Activities and the existing wells cannot be predicted with certainty, a Monitoring Plan shall be implemented to establish existing or baseline conditions and to determine the existence and extent of any effects of the Dewatering Activities. The monitoring data will be used to determine whether mitigative measures should be implemented and also to assist in determining the appropriate response actions. The Monitoring Plan includes observation of water levels at nearby mine pits, observation wells and the City Wells, as well as water quality monitoring at the City’s existing supply wells. Monitoring activities required by this agreement shall commence as soon as practical after execution of this agreement. Information will then be collected quarterly and summarized annually for review by the parties.

U. S. Steel will be responsible for monitoring water levels at the following points: Mesabi Chief Pit, St. Paul Pit, Carlz Pit and at Keewatin Well 2 (currently not in service). U. S. Steel will also be responsible for sampling Keewatin Wells 1 and 3 for baseline water quality including general chemistry and dissolved mineral constituents. Pressure transducers and data loggers will be used for water level measurements at these monitoring points.

The City of Keewatin agrees to maintain their wells in good working condition and will provide to U. S. Steel on an annual basis available information concerning the condition of the wells, water levels and the quality of water pumped.



On February 15, 2011 and on February 15 of each subsequent year during the term of this agreement, U. S. Steel will prepare a report for the previous calendar year that contains a summary of the data collected during the year, a description of any changes to the monitoring network, any recommended changes to the monitoring network and a determination as to any effects of the Dewatering Activities on the City of Keewatin's well water supply.

**Mitigation:** If it is determined that the Dewatering Activities have adversely impacted the production or quality of the Keewatin water supply, U. S. Steel will immediately notify the City, the Minnesota Department of Natural Resources and the Minnesota Department of Health. U. S. Steel and the City, along with the Minnesota Department of Natural Resources and Minnesota Department of Health as appropriate, will determine the appropriate response actions to mitigate those adverse impacts. Depending on the nature and severity of the impacts, the response actions could range from increased monitoring or additional water treatment to development of a new water source.


**Funding:** U. S. Steel will be responsible for funding the monitoring activities and response actions required by this agreement. If response actions taken under this agreement are eligible for grant programs for water system improvements, the City shall pursue funding from those programs. U. S. Steel will reimburse the City for the cost of grant writing that is associated with this part of this agreement. Funds received by the City through such programs will be used to offset U. S. Steel's costs for response actions under this agreement.

**Term:** This Agreement shall be effective upon execution by the parties and may be terminated at any time by agreement of the parties. This agreement will terminate not later than the date of the termination of the Dewatering Activities.


**Disputes:** This Contingency Plan may be amended at any time by agreement of the parties. In the event that the parties cannot agree on the cause of any adverse impacts to the Keewatin water supply or the appropriateness of a proposed response action nothing in this agreement shall prevent the parties from utilizing the Minnesota Department of Natural Resources dispute resolution process provided for in MN Rules 6115.0730 – Well Interference Problems Involving Appropriation.

The undersigned parties agree to the terms and conditions of this Contingency Plan:

**For the City of Keewatin:**

By: <u></u>	<u>Tom Sampson</u>
Signature	Name
Its: <u>Mayor</u>	<u>3-23-09</u>
Title	Date

**For United Steel Steel Corporation - Minnesota Ore Operations:**

By: <u></u>	<u>Michael S. Rhoads</u>
Signature	Name
Its: <u>Plant Manager / PROJECT Mgr.</u>	<u>3/23/2009</u>
Title	Date
<u>Retrac Expansion</u>	