FUGITIVE DUST CONTROL PLAN

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Great River Energy – Stanton Station

Submitted To: Great River Energy
Stanton Station
4001 Highway 200A
Stanton, North Dakota 58571

Submitted By: Golder Associates Inc.
44 Union Boulevard, Suite 300
Lakewood, Colorado 80228

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Golder Associates

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1.0 INTRODUCTION

This Coal Combustion Residuals (CCR) Fugitive Dust Control Plan (the Plan) has been prepared for Great River Energy's (GRE's) Stanton Station (SS). This Plan has been developed in accordance with recognized and generally accepted best management practices and the CCR Rule(Criteria for Classification of Solid Waste Disposal Facilities and Practices, Subpart D – Standards for the Disposal of CCRs in Landfills and Surface Impoundments, published in the Code of Federal Regulations Title 40 Part 257 (40 CFR 257) April 17, 2015). This Plan addresses measures to "effectively minimize CCR from becoming airborne at the facility, including CCR fugitive dust originating from CCR units, roads, and other CCR management and material handling activities" (40 CFR 257.80).

This Plan includes identification of the CCR-related fugitive dust sources at SS; measures to control the fugitive dust; reasons for selecting the dust control measures; procedures to evaluate the effectiveness of the Plan; procedures for documenting citizen complaints; and requirements for recordkeeping and notification. This Plan may be amended from time to time. The most recent Plan will be maintained in the Operating Record.

1.1 Facility Description

SS is a coal-fired electric generation facility located in Mercer County, North Dakota, approximately 3 miles southeast of the city of Stanton along the Missouri River. The facility can generate up to 188 mega-watts of electricity and covers 250 acres.

CCRs generated at SS include spray dryer material (e.g. flue gas desulfurization (FGD) material), fly ash, economizer ash and bottom ash. CCRs produced at the Hazen and Center Public Schools, GRE's Spiritwood Station and Basin's Leland Olds Station may also be deposited at SS. The dry, spray dryer material is collected with the fly ash in the Baghouse. The co-mingled spray dryer/fly ash and fly ash from the other potential sources is then managed in a dry landfill off-site. Economizer ash and bottom ash are managed together in two surface impoundments and a dry landfill located at the Stanton Station Facility. The four facilities are owned and operated by GRE and regulated by the North Dakota Department of Health (NDDH). This Plan includes dust control measures for management, handling, transport and placement of CCRs.

1.2 Regulatory Requirements

At SS, fugitive dust (both CCR-related and otherwise) and other air emissions are regulated by the NDDH in accordance with the Air Pollution Control Title V Operating Permit, Permit Number T5-F76007. Fugitive dust generated by CCR-related activities at SS will also be managed in accordance with the CCR Rule, 40 CFR 257. This Plan is limited to addressing the requirements of the CCR Rule. Specific requirements

of the Title V Operating Permit are not duplicated in this Plan. The requirements of the Fugitive Dust Control Plan as listed in 40 CFR 257.80(b) are:

- Identify and describe the CCR fugitive dust control measures used at SS, and explain the reasons for selection of these measures, in the Plan.
- Moisture condition CCRs prior to, during, and/or after placement.
- Provide procedures in the Plan to log citizen complaints regarding CCR fugitive dust at SS.
- Describe procedures to evaluate the effectiveness of the Plan.
- Place the initial Plan in the Operating Record by October 19, 2015.
- Prepare an annual report of CCR fugitive dust control activities.
- Maintain the most recent Plan and annual reports for the previous five years in the Operating Record.
- Notify NDDH when the initial Plan, an amended Plan, or an annual report is placed in the Operating Record.
- Post the current version of the Plan and annual reports for the previous five years on a publically accessible website.

2.0 FUGITIVE DUST CONTROL MEASURES

Fugitive dust may be generated at SS by loading, transport and placement operations. The specific locations of potential CCR fugitive dust sources are as follows:

- Collection, Handling, and Loading
  - Fly Ash
    - Electrostatic Precipitator (ESP) or Baghouse to Fly Ash Silo
    - Fly Ash Silo to Haul Trucks, Tanker Trucks, or Fly Ash Super Sacks
  - Spray Dryer Material
    - Baghouse to Fly Ash Silo
    - Managed with the fly ash
  - Bottom Ash
    - Hopper to Bottom Ash Ponds (BAPs)
    - Bottom Ash Ponds to the Inert Bottom Ash Landfill
  - Economizer Ash
    - Hopper to BAPs
    - Managed with the bottom ash
- Transport
  - Haul Trucks, Tanker Trucks and Semi Truck with Super Sacks
  - Haul Roads
- Placement
  - Surface Impoundments
  - Landfill

2.1 Collection, Handling and Loading

Fly ash and spray dryer material generated at SS Unit 10 is collected in a baghouse using fabric dust collector filter bags, Fly ash generated at Unit 1 is collected in an ESP. The fly ash and spray dryer material from both units is pneumatically conveyed to the Fly Ash Silo for temporary storage. Fly ash sold for beneficial reuse is dry loaded directly into tanker trucks or Super Sacks. The Super Sacks are transported off-site in haul trucks. Fly ash that is not sold for beneficial reuse is loaded into haul trucks in a partially enclosed loading area that can be fully enclosed through use of retractable entrance and exit doors.

Bottom ash generated at SS is quenched with water in a hopper beneath the boiler. From the hopper, bottom ash is hydraulically conveyed to the BAPs. The BAPs consist of three cells (North, Center and South). Bottom ash is conveyed into one of the active impoundment cells (i.e., the North or South cell) and the sluice water used to convey the bottom ash to the surface impoundment is decanted to the water

retention cell (i.e., the Center cell). Bottom ash is contained in the active cell until that cell nears its design capacity. At that time, bottom ash deposition is transferred to the other active cell and the bottom ash in the filled cell is dewatered, excavated and hauled via trucks to the adjacent inert waste landfill for disposal.

Economizer ash generated at SS is collected in enclosed hoppers below the Economizer, and then hydraulically conveyed to the BAPs. Once in the BAPs, the economizer ash is managed with the bottom ash.

Fugitive dust during CCR collection, handling and loading may be created by wind, excavation operations and/or truck loading operations. For CCR collection, handling and loading, fugitive dust emissions are controlled by:

- Operating the ESP and baghouse with best practice operation and maintenance practice and in accordance with the Title V Operating Permit.
- Pneumatically conveying dry CCRs.
- Capturing airborne particulate matter in a baghouse or bin vent filter for air displaced from the Fly Ash Silo.
- Loading fly ash via chutes from the Fly Ash Silo into trucks.
- Loading the Super Sacks with a sealed hopper loading system.
- Moisture conditioning fly ash to limit dust emissions.
- Limited handling of unconditioned fly ash to the extent possible.
- Quenching bottom ash with water in the hopper prior to conveyance to the Bottom Ash Silo.
- Hydraulically conveying bottom ash and economizer ash. Once the ponds are full, bottom ash and economizer ash are transported to the landfill with sufficient moisture content to limit fugitive dust generation.
- Limiting the fall distance from the pug mill to haul trucks.
- Reducing or halting operations during high winds.

2.2 Transport

Control measures implemented to limit fugitive dust emissions from CCR transport are as follows:

- Restricting speeds on onsite haul roads to 25 miles per hour (mph).
- Maintaining gravel surface on the onsite haul roads at SS.
- Wetting onsite haul roads with water or chemical dust suppressants as needed to limit fugitive dust generation and when temperatures are above freezing.
- Fly ash sold for off-site beneficial reuse is pneumatically conveyed into closed tanker trucks or Super Sacks.

2.3 Placement

The co-mingled spray dryer/fly ash material is handled dry and managed in a landfill off-site. Economizer ash and bottom ash are managed together in two surface impoundments and a dry landfill located at the Stanton Station Facility. Fugitive dust may be created by vehicle traffic, truck unloading operations, CCR Facility maintenance operations, and/or wind. Fugitive emissions from these operations are controlled by:

- Placing CCRs with sufficient moisture content to help reduce fugitive dust generation.
- Limiting the fall distance from haul trucks.
- Adding moisture to the CCRs with a water truck or sprinkler system after placement to prevent off-property transport of visible emissions.
- Compacting CCRs after placement. Compaction may be achieved by making a pass over spread materials with a haul truck or other heavy equipment.
- Reducing or halting operations during high wind events.

2.4 Control Measure Explanation

This section provides the explanation and reasoning behind the CCR fugitive dust control measures for SS:

- Operating the ESP and Baghouse in Accordance with the Title V Operating Permit – The ESP and Baghouse at SS is designed to collect fine particulates. Operation of the ESP and Baghouse with best practice operation and maintenance practice and in accordance with the Title V Operating Permit helps assure that recognized and generally accepted good engineering practice is followed.
- Pneumatic Conveyance for Dry CCRs – Dry CCRs are enclosed during pneumatic conveyance, limiting the potential for fugitive dust generation.
- Baghouses and Bin Vent Filters– Baghouses and bin vent filters are designed to control fugitive dust emissions when air is displaced during filling of a silo, like those used for fly ash storage at SS.
- Chutes – Fly ash is loaded into haul trucks from the rotary unloader deck directly below the Fly Ash silos. This results in a long fall distance between the rotary unloader and the haul truck bed. Chutes are used to decrease this fall distance, which reduces the energy and radius of dispersal.
- Moisture conditioning CCRs during Collection, Handling, Loading and Transport – Adding moisture to CCRs with water or other permitted liquid to achieve a moisture content that will limit wind dispersal, but will not result in free liquids (40 CFR 257.80(b)(2)), is an effective strategy for controlling fugitive dust. In addition to providing dust suppression, moisture conditioning takes advantage of the pozzolanic (i.e., cementing) properties of fly ash by binding particles together and creating a crust at the ground surface. Particles joined by moisture also have increased mass and require more energy to become airborne. Moisture conditioning is used at SS because fly ash is transported to the off-site landfill in haul trucks.
- Off-site beneficial reuse of fly ash will be transported in closed tanker trucks or closed Super Sacks – Closed tanker trucks/Super Sacks allow for pneumatic filling with fly ash and limits the potential for CCRs to become airborne during transport off-site. Both closed tanker trucks and Super Sacks are used at SS.

- Reducing or Halting Placement in High Winds – Reducing or halting operations during periods of high wind reduces the potential for CCRs to become airborne. Sustained winds over 25 miles per hour (mph) or wind gusts over 35 mph are considered to be high winds.
- Speed Limits – Limiting Haul Truck Speeds during CCR Transport Results in Reduced Wind Dispersal. Bottom ash is transported on haul roads from the surface impoundments to the landfill.
- Gravel Surfacing – Gravel surfacing limits fugitive dust generation due to the relatively large particle size and is also effective for track-out control. The roads at SS are gravel surfaced.
- Watering Roads – The haul roads at SS are gravel surfaced and have the potential for developing fugitive dust. Watering is an effective method for limiting fugitive dust emissions from roadways, particularly unpaved roads. For paved roads, the use of watering, flushing, or sweeping is effective in removing potential fugitive dust, thereby minimizing mechanical interaction between tires or blowing wind and dust on roads.
- Limited Fall Distance – Limiting the fall distance at the drop point helps to contain the flow of material into a confined area, reducing the energy and radius of dispersal.
- Compacting CCRs After Placement – Compaction of moisture conditioned CCRs helps establish a crust at the ground surface, which can be effective for limiting the generation of fugitive dust.

3.0 EVALUATION OF PLAN EFFECTIVENESS

As specified in the preamble to the CCR Rule, performance standards will be employed to evaluate the effectiveness of the Plan. Environmental and site staff trained in making visual emission observations will perform routine functions and observations to assure that CCR fugitive dust at SS is adequately controlled. Descriptions of these activities follow:

- Routine visual emission observations will be conducted to determine whether dust is visible at the collection, handling and loading sources per the Title V Operating Permit. Certification to perform these visual emission observations is not required. Corrective action will be taken if fugitive emissions at these sources are visible.
- For fugitive emissions resulting from transport and/or placement, routine visual emission observations will be conducted to determine whether dust is becoming airborne in such quantities and concentrations that it remains visible in the ambient air beyond the premises where it originates or visible plumes cross the property boundary. Corrective action will be taken if fugitive emissions are observed crossing the property boundary.
- The ESPs and Baghouses are monitored continuously using the Precipitator Operating Software (POS) in accordance with the Title V Operating Permit. Also, as part of the operations and maintenance routine, the operation of the ESP and Baghouse is observed at least once per day.

The observations and routine functions listed above are standard practice at SS. Visual emissions are observed daily during operations to assure that fugitive dust at the site is controlled. Personnel involved in CCR handling and placement are instructed on an annual basis in specific procedures to ensure compliance with the permits, facility plans and appropriate regulations. When conditions are not in line with the site standards for fugitive dust emissions, designated facility personnel are notified and corrective action is taken as needed.

4.0 CITIZEN COMPLAINTS

Citizen complaints regarding CCR fugitive dust generated at SS can be submitted on GRE's website. The website address is: www.greatriverenergy.com.

Documenting citizen complaints and implementing corrective action will be in accordance with GRE's Environmental Communication Procedure, Section 4.4.3. In summary, this procedure requires that the complaint will be recorded, the cause of the complaint will be investigated, and corrective action will be taken if warranted. The complaint will be incorporated into the annual report, along with a summary of the corrective measure(s) taken to address the complaint.

5.0 REPORTING

The recordkeeping, notification, and posting of information to a publicly accessible website required for this Plan are described in the following sections.

5.1 Fugitive Dust Control Plan

The initial Plan will be placed in the Operating Record on or before October 19, 2015. The NDDH will be notified before the close of business on the day the Plan is placed in the Operating Record. Within 30 days of placement in the Operating Record, the initial Plan will be posted to the publicly accessible website. Certification by a professional engineer registered in North Dakota is required and provided in Section 6.0.

The Plan may be amended at any time with the most recent Plan maintained in the Operating Record. Notification will be provided before the close of business on the day an amended Plan is placed in the Operating Record. Within 30 days of placement in the Operating Record, the most recent Plan will be posted to the publicly accessible website. The amended Plan will be certified by a professional engineer registered in North Dakota.

5.2 Annual Report

The following items will be addressed in each annual report:

- Descriptions of actions taken to control CCR fugitive dust at SS during the previous year.
- A record of citizen complaints received during the previous year.
- A summary of corrective measures taken during the previous year.

The first annual report will be placed in the Operating Record within 14 months of the Plan's placement in the Operating Record. Subsequent reports will be placed in the Operating Record within one year of the previous annual report's placement in the Operating Record.

The NDDH will be notified before the close of business on the day an annual report is placed in the Operating Record. Within 30 days of placement in the Operating Record, the annual report will be posted to the publicly accessible website. At least the five most recent annual reports will be retained in the Operating Record and posted to the website.

6.0 CERTIFICATION

The fugitive dust control measures selected for controlling CCR fugitive dust at SS, as described in this Plan, represent recognized and generally accepted best management practice, are applicable and appropriate for site conditions, and are expected to effectively limit the amount of CCR that becomes airborne at SS. Inquiries may be directed to:

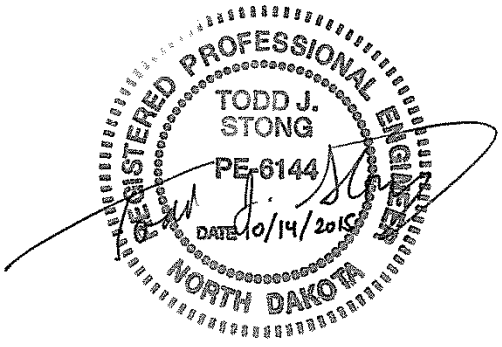
Great River Energy
Stanton Station
Attn: Fugitive Dust Complaint
4001 Highway 200A
Stanton, North Dakota 58571

Great River Energy
www.greatriverenergy.com

GOLDER ASSOCIATES INC.

Tammy Rauen, PE
Senior Project Engineer

Todd Stong, PE
Associate and Senior Engineer



FIGURE

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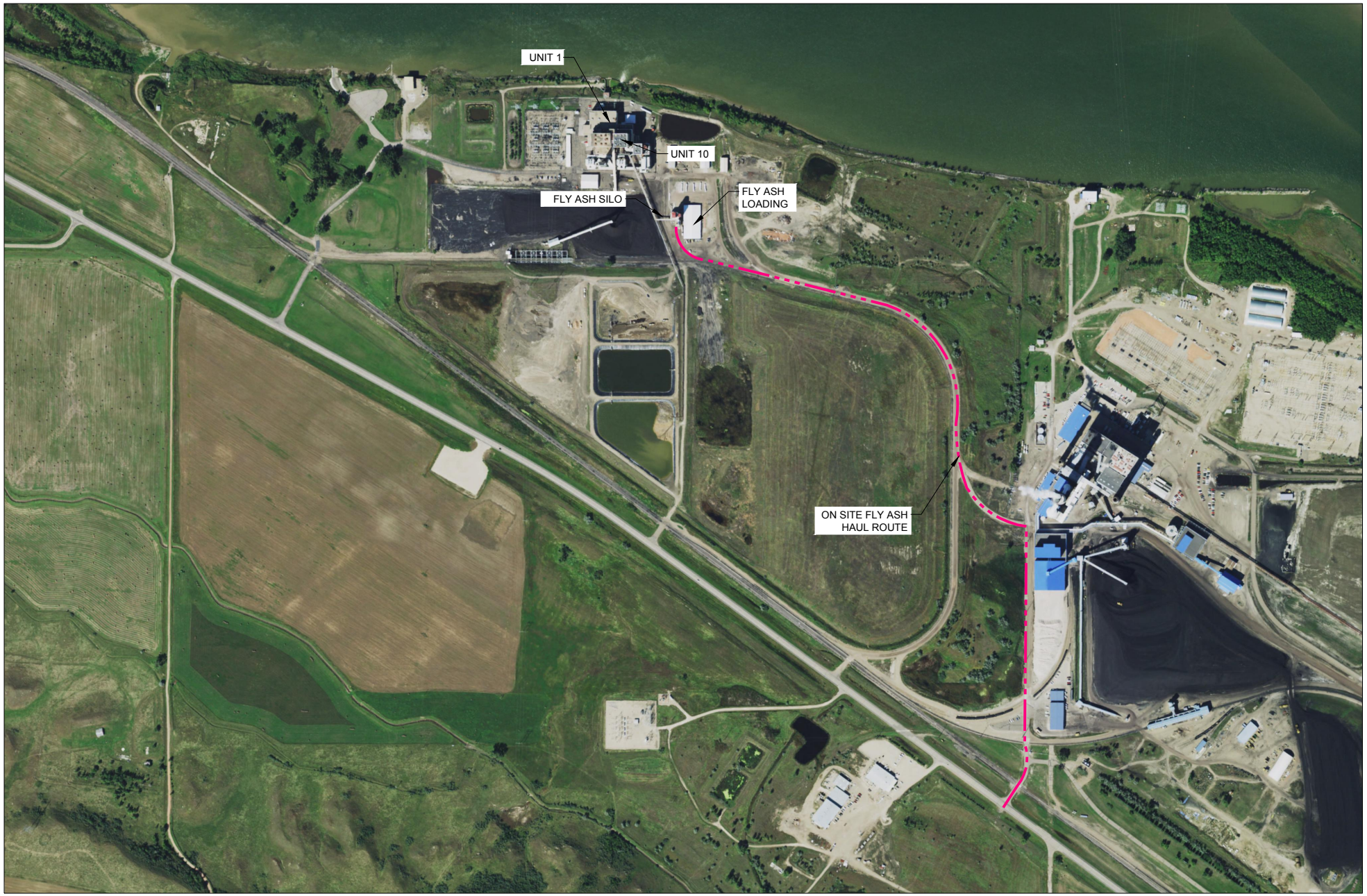

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GREAT RIVER ENERGY STANTON STATION
FUGITIVE DUST LOCATIONS AND HAUL ROUTE

FIGURE 1

Established in 1960, Golder Associates is a global, employee-owned organization that helps clients find sustainable solutions to the challenges of finite resources, energy and water supply and management, waste management, urbanization, and climate change. We provide a wide range of independent consulting, design, and construction services in our specialist areas of earth, environment, and energy. By building strong relationships and meeting the needs of clients, our people have created one of the most trusted professional services organizations in the world.

Africa	+ 27 11 254 4800
Asia	+ 852 2562 3658
Australasia	+ 61 3 8862 3500
Europe	+ 356 21 42 30 20
North America	+ 1 800 275 3281
South America	+ 56 2 2616 2000

solutions@golder.com
www.golder.com

Golder Associates Inc.
44 Union Blvd., Suite 300
Lakewood, CO 80228
Tel: 303.980.0540
Fax: 303.985.2080

Golder Associates

Engineering Earth's Development, Preserving Earth's Integrity