

# Corrective Action Report

NDIC Site 1359-10  
Williams County, North Dakota

February 10, 2017

Terracon Project No. M1167113A



**Prepared for:**

NDIC Oil and Gas Division  
Bismarck, North Dakota

**Prepared by:**

Terracon Consultants, Inc.  
West Fargo, North Dakota

[terracon.com](http://terracon.com)

**Terracon**

Environmental



Facilities



Geotechnical



Materials



February 10, 2017

Mr. Cody VanderBusch  
Reclamation Specialist  
NDIC Oil and Gas Division  
600 East Boulevard Avenue Dept. 405  
Bismarck, ND 58505-0840  
Office 701-328-8020  
Cell 701-391-1959

Re: Corrective Action Report  
NDIC 1359-10  
S34-T155N-R103W  
Williams County, North Dakota  
Terracon Project No. M1167113A

Dear Mr. VanderBusch:

Terracon Consultants, Inc. (Terracon) is pleased to submit the enclosed Corrective Action Report (CAR) which summarizes the sealing of two seismic boreholes. Prior to sealing, the boreholes had groundwater emanating along the annulus causing surface impacts to agricultural cropland northwest of Williston, Williams County, North Dakota. Prior to proceeding with borehole sealing activities at the site, Terracon prepared a Corrective Action Plan (CAP) dated November 11, 2016 which was submitted to North Dakota Industrial Commission (NDIC) Oil and Gas Division for review and approval. Terracon conducted the scope of services outlined in the CAP in general accordance with our Master Service Agreement (reference number 110.7-15-004) dated September 1, 2015 and your notice to proceed dated November 14, 2016.

Based on the oversight activities, the seismic boreholes have been sealed. Impacts to the site have been repaired from borehole sealing activities to minimize surficial impacts to cropland. Please refer to the report for details.

Terracon appreciates this opportunity to provide our services to NDIC Oil and Gas Division. Should you have questions or require additional information, please do not hesitate to contact our office.

Sincerely,  
**Terracon Consultants, Inc.**

Jacqueline M. Finck  
Staff Geologist

Dan C. Nebel  
Approved Project Reviewer



Terracon Consultants, Inc. 860 9<sup>th</sup> Street NE, Unit K West Fargo, North Dakota 58078  
P 701-282-9633 F 701-282-9635 terracon.com

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**CORRECTIVE ACTION REPORT  
NDIC 1359-10  
S34-T155N-R103W  
WILLIAMS COUNTY, NORTH DAKOTA**

**Terracon Project No. M1167113A  
February 10, 2017**

## **1.0 INTRODUCTION**

The site is located in Section 34 (S34) - Township 155 North (T155N) Range 103 West (R103W) near Williston, Williams County, North Dakota. Terracon understood the site is located on a parcels of land operated by Mr. Robert Arnson and Mr. John Heller. An access agreement was obtained with the respective landowners.

### **1.1 Corrective Action**

A CAP was prepared by Terracon dated November 11, 2016 to manage remediation activities and the sealing of the seismic boreholes. The CAP was approved by the NDIC on November 14, 2016. The CAP and general correspondence with NDIC proposed the following response actions:

- Based upon data obtained through visual site assessment, three abandoned seismic boreholes required sealing. Terracon would seal the abandoned boreholes in accordance with North Dakota Department of Health (NDDoH) water well abandonment guidelines outlined in Article 33-18 of the North Dakota Administrative Code (NDAC) by restoring, as far as possible, the geological conditions which existed before the boreholes were drilled.
- Each borehole would be made free of all loose material that could cause bridging during decommissioning by over-drilling using solid/hollow stem auger or air/mud rotary drilling techniques.
- If water is present, the water in the borehole will be disinfected to 100 parts per million (ppm) chlorine concentration. A 100 ppm chlorine concentration will require two pounds of laundry bleach or 1.2 pounds of calcium hypochlorite per one thousand gallons of water.
- Following completion of disinfecting activities, the borehole will be filled with an appropriate plugging material to a depth not less than three feet below grade surface (bgs). Neat cement or a cement/bentonite mixture may be used throughout the entire length of the borehole. Grout will be injected at the bottom of the hole using a pressure grouting technique or gravity-fed with a *tremie*' pipe forcing grout and fluids present upwards. This will be done in one continuous operation in such a fashion as to prevent voids or air pockets from forming; side-discharge *tremie*' pipe will be placed in the hole

and slowly pulled up as the grout reaches the bottom of the *tremie*’ pipe. Concrete or topsoil will be used as a cap for the remainder of the borehole to the surface.

- Cuttings from the drilling operations will be thin spread on the site.

## 2.0 DISCUSSION

### 2.1 Seismic Borehole Sealing and Reclamation

Terracon was on-site January 18, 2017 to complete sealing activities for the two seismic boreholes. Terracon was able to pinpoint the exact location of each borehole prior to sealing activities. We were also able to observe bentonite from previous sealing activities at approximately 10 to 20 feet bgs in borings 1359-10 (1) and 1359-10 (2) using hollow stem auger techniques, stop the flow of groundwater. Bentonite was then placed into the boreholes via back-drilling, sealing the boreholes. Please refer to the table below (Table 1) for details of each borehole. Approximate locations of each borehole can be found in Appendix A – Exhibit 2.

**Table1: Borehole Sealing Records**

Borehole ID	Location	Latitude	Longitude	Date Completed	Sealing Material	Depth (ft)
1359-10 (1)	NE¼ of S34-T155N-R103W	48.206820°	-103.915190°	1/18/2017	Bentonite Pellets	0-20
1359-10 (2)	SE¼ of S34-T155N-R103W	48.205050°	-103.906671°	1/18/2017	Bentonite Pellets	0-10

## 3.0 CONCLUSIONS

Terracon was able to identify bentonite from previous sealing activities using hollow stem auger techniques stopping the flow of groundwater. The two abandoned seismic boreholes were sealed by back-drilling bentonite into the boreholes, stopping groundwater from emanating from the annulus of the borehole. The depths ranged from approximately 10 to 20 feet bgs.

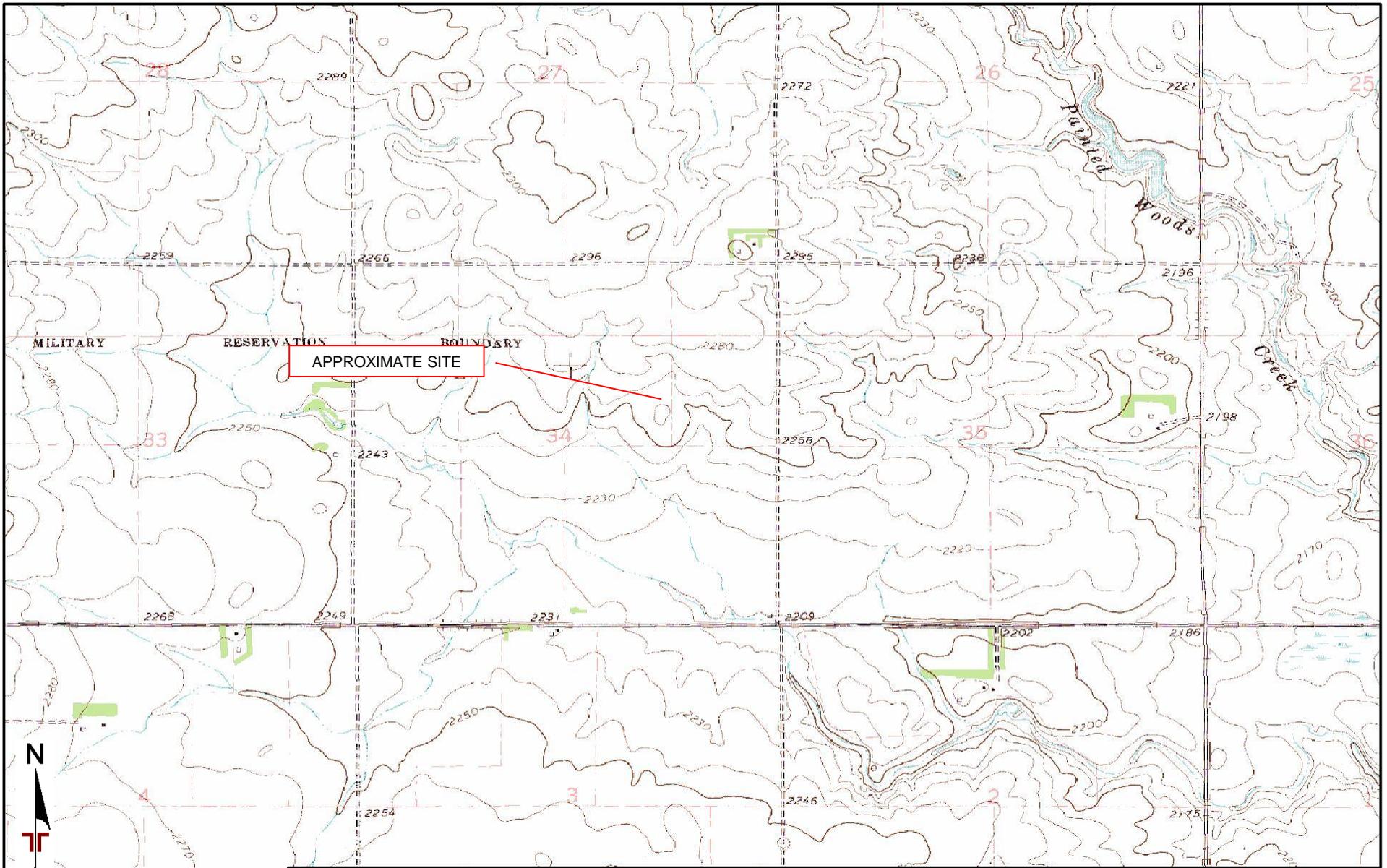
## 4.0 RECOMMENDATIONS

Based on the results, Terracon recommends no further action for the site.

## 5.0 STANDARD OF CARE

Terracon’s services were performed in a manner consistent with generally accepted practices of the profession undertaken in similar studies in the same geographical area during the same time. Terracon makes no warranties, either express or implied, regarding the findings, conclusions, or

recommendations. Please note that Terracon does not warrant the work of laboratories, regulatory agencies, or other third parties supplying information used in the preparation of the report. These corrective action services were performed in accordance with the scope of work agreed with you, our client, as reflected in our Corrective Action Plan and were not restricted by ASTM E1903-11.



TOPOGRAPHIC MAP IMAGE COURTESY OF THE U.S. GEOLOGICAL SURVEY  
 QUADRANGLES INCLUDE: TRENTON NW, ND (1/1/1974).

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Project Manager: LHS	Project No. M1167113
Drawn by: JMF	Scale: 1"=2,000'
Checked by: LHS	File Name: M1167113A.pdf
Approved by: DCN	Date: 2/7/2017

**Terracon**  
 860 9th St. NE Unit K  
 West Fargo, ND 58078

<b>TOPOGRAPHIC MAP</b>
<b>NDIC 1359-10 Borehole Sealing</b> PIN 601550300345050 Williston, ND

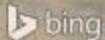
Exhibit
1



1359-10 (2)

1359-10 (1)

500 feet



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AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Project Manager: LHS  
 Drawn by: JMF  
 Checked by: LHS  
 Approved by: DCN

Project No. M1167113  
 Scale: AS SHOWN  
 File Name: M1167113A.pdf  
 Date: 2/7/2017

**Terracon**

860 9th St. NE Unit K  
 West Fargo, ND 58078

**SITE DIAGRAM**

NDIC 1359-10 Borehole Sealing  
 PIN 601550300345050  
 Williston, ND

Exhibit  
**2**



**Photo #1** View of borehole 1359-10 (1) from the initial site visit.



**Photo #2** View of borehole 1359-10 (1) from the initial site visit.



**Photo #3** View of the affected farmland from borehole 1359-10 (1).



**Photo #4** View of trenching at borehole 1359-10 (1).



**Photo #5** View of borehole 1359-10 (1).



**Photo #6** View of borehole 1359-10 (1).



**Photo #7** View of the sealing of borehole 1359-10 (1).



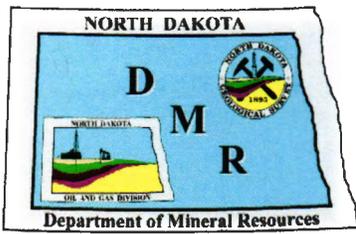
**Photo #8** View of borehole 1359-10 (2).



**Photo #9** View of borehole 1359-10 (2).



**Photo #10** View at sealed borehole 1359-10 (1).



# Department of Mineral Resources

Lynn D. Helms -- Director

North Dakota Industrial Commission

www.dmr.nd.gov

July 25, 2014

To: N.D. County Emergency Managers

Re: N.D. Oil and Gas Division – Abandoned Oil and Gas Well Plugging and Site Reclamation Fund (AWPSRF)

The members of the North Dakota Industrial Commission - Department of Mineral Resources – Oil and Gas Division (OGD) appreciate your ongoing efforts regarding the protection of the people and environment of our great State.

As you may know, the mission of the OGD is to encourage and promote the development, production, and utilization of oil and gas in the State in such a manner as will prevent waste, maximize economic recovery, and fully protect the correlative rights of all owners to the end that the landowners, the royalty owners, the producers, and the general public realize the greatest possible good from these vital natural resources.

Keeping this mission in mind, the OGD has been managing the AWPSRF for over 30 years since its creation by the legislature in 1983. We have recently created a new program team, within the OGD, that is responsible to oversee the proper reclamation of these types of sites that ***may result from the illegal dumping of oil-field waste.***

Most importantly, the fund was created and is sustained from oil and gas taxes, penalties from violations, and fees collected by the OGD. The fund is currently capped at \$75 million with \$5 million available per fiscal year. ***Funds are authorized from this fund to pay for projects in instances where no responsible party can be found.***

It is important to understand that in order for the costs of a reclamation project to be eligible for reimbursement from AWPSRF, ***an OGD field inspector must be contacted prior to the conduct of any remedial activity and provided an opportunity to visit and evaluate the site.*** The OGD has contracted with an environmental services provider who can affect the proper assessment and reclamation of these types of sites at the direction of the OGD. Attached to this letter is the contact information for our field inspection staff and their respective offices and an AWPSRF Program review diagram that is used by the OGD to evaluate the suitability of cost reimbursement.

Additional information on new rules and regulations that have been implemented in order to reduce illegal dumping incidents can be found on the OGD website at: <https://www.dmr.nd.gov/oilgas/>

Through the continued management of AWPSRF and the new rules that have been put forth by our Division we will continue to take positive and constructive steps to ensure responsible development and management of our States oil and gas resources.

Please feel free to contact our offices at any time if you have any questions about the AWPSRF program.

Respectfully,

N.D. Department of Mineral Resources:

Fred J. Anderson  
GeoTech Support Staff Officer

ABANDONED OIL AND GAS WELL PLUGGING AND SITE RECLAMATION FUND (AWPSRF) REVIEW

Effective 7/1/2013

Funds Request / Complaint Investigation 43-02-03-54 / Discovery by Inspector / Spill Response

**AUTHORIZED USE OF FUND?**

- 1) Plug an abandoned well
- 2) Reclaim an abandoned oil and gas or injection well site, saltwater disposal pit, drilling fluid pit, or access road put into service after 7/31/1983
- 3) Reclaim an oil and gas related pipeline or associated facility put into service after 7/31/1983
- 4) Reclaim damage from an illegal dumping incident,
- 5) Compensate a mineral owner's royalty share of confiscated oil



DO NOT FUND

**LEAK OR SERIOUS THREAT?**

Well, equipment, or pipeline leak, or dumping incident is likely to cause a serious threat of pollution or injury to public health or safety



USE AWPSRF  
Unless responsible party is responding

**NO RESPONSIBLE PARTY?**

Company cannot be found, has no assets, or cannot be legally required to plug/re-plug/reclaim



COMPLAINT or  
JUDGMENT ==>  
RESPONSIBLE PARTY  
CLEANS UP, PAYS, OR  
REIMBURSES AWPSRF

**NO BOND?**

No bond or cost to plug/re-plug/reclaim exceeds the bond amount



CONFISCATE BOND,  
EQUIPMENT, AND  
OIL

USE ABANDONED OIL AND GAS WELL PLUGGING AND SITE RECLAMATION FUND (AWPSRF)

**North Dakota Industrial Commission**  
**North Dakota Department of Mineral Resources**  
**North Dakota Oil & Gas Division**

**Lynn Helms**  
*Director*



**Bruce Hicks**  
*Assistant Director*

**Abandoned Oil and Gas Well Plugging and  
Site Reclamation Fund Program  
(AWPSRF)**

**Program Team Contacts:**

**Cody Vanderbusch**  
*Reclamation Supervisor*  
*Bismarck*  
*(701) 328-8018*  
*cwvanderbusch@nd.gov*

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*rhutchens@nd.gov*

**John Axtman**  
*Williston District Supervisor*  
*(701) 770-2564*  
*jaxtman@nd.gov*

**Bob Garbe**  
*Minot District Supervisor*  
*(701) 720-3262*  
*bgarbe@nd.gov*



November 11, 2016

Mr. Cody VanderBusch  
Reclamation Specialist  
NDIC Oil and Gas Division  
600 East Boulevard Avenue Dept. 405  
Bismarck, ND 58505-0840

Office 701-328-8020  
Cell 701-391-1959

Re: Corrective Action Plan  
NDIC 1359-10  
NE¼ of S34-T155N-R103W  
Williams County, North Dakota  
Terracon Project No. M1167113A

Dear Mr. VanderBusch:

Terracon Consultants, Inc. (Terracon) appreciates the opportunity to submit the enclosed Corrective Action Plan (CAP) for the above-referenced site. The following sections provide an outline of the project, Terracon's CAP scope of services, including schedule, and our estimated fee.

## 1.0 PROJECT INFORMATION

Terracon understands the North Dakota Industrial Commission Oil and Gas Division (NDIC) has identified the site located approximately in the NE¼ of Section 34 (S34), Township 155 North (T155N), Range 103 West (R103W) in Williams County, North Dakota with groundwater emanating along the annulus of an abandoned borehole causing surface impacts. Terracon further understands the boreholes are located on a parcel of land operated by Mr. Robert Arnson. The location of the site and indications of the abandoned borehole is depicted on Exhibits 1 and 2. Terracon understands up to one borehole requires plugging.

If our understanding of the current site conditions is not correct, or if you have additional useful information, please let us know as soon as possible.

## 2.0 COMMITMENT TO SAFETY

Terracon has a 100% commitment to the safety of its employees. As such, and in accordance with our *Incident and Injury Free*® safety culture, Terracon will develop a health and safety plan in conjunction with Pre-Task Planning to be used by our personnel during field services. Prior to commencement of on-site activities, Terracon will hold a meeting to review health and safety needs for this specific project. At this time, we anticipate performing fieldwork in a United States Environmental Protection Agency (USEPA) Level D work uniform consisting of hard hats, safety glasses, protective gloves, reflective vests, and steel-toed boots. It may become necessary to upgrade this level of protection, at additional cost, while sampling activities are being conducted in the event that petroleum or chemical constituents are encountered in soils or groundwater that present an increased risk for personal exposure.

## 3.0 SCOPE OF SERVICES

The objective of the CAP is to seal the abandoned boreholes in accordance with North Dakota Department of Health (NDDoH) water well abandonment guidelines outlined in Article 33-18 of the North Dakota Administrative Code by restoring, as far as possible, the geological conditions which existed before the borehole was drilled. The desired product for this CAP is to decommission the boreholes to eliminate surficial physical hazards, prevent contamination of groundwater, maintain aquifer pressure head, prevent intermingling of desirable and undesirable waters, and eliminate the possibility the borehole will be used for purposes other than intended.

Following receipt of your executed Task Order and no later than 48 hours prior to intrusive activities, Terracon will contact North Dakota One Call to arrange for identification of underground utility locations at the above referenced site.

### 3.1 Location

Terracon will locate the borehole with a preliminary search using visual inspection and physical evidence prior to using excavation equipment. Excavation will be the final procedure used to verify the location of the borehole. Excavation may be accomplished by shovel or larger equipment such as a backhoe or hydro vacuum trucks depending on success in finding the proximity of the initial site of excavation to where the borehole is discovered or excavation ceases.

### 3.2 Plugging Procedure

Each borehole will be made free of all loose material that could cause bridging during decommissioning by over-drilling using solid/hollow stem auger or air/mud rotary drilling techniques.

If water is present, the water in the borehole will be disinfected to 100 parts per million (ppm) chlorine concentration. A 100 ppm chlorine concentration will require two pounds of laundry bleach or 1.2 pounds of calcium hypochlorite per one thousand gallons of water.

Following completion of disinfecting activities, the borehole will be filled with an appropriate plugging material to a depth not less than three feet below grade surface. Neat cement or a cement/bentonite mixture may be used throughout the entire length of the borehole. Grout will be injected at the bottom of the hole using a pressure grouting technique or gravity-fed with a tremie pipe forcing grout and fluids present upwards. This will be done in one continuous operation in such a fashion as to prevent any voids or air pockets from forming; side-discharge *tremie*' pipe will be placed in the hole and slowly pulled up as the grout reaches the bottom of the *tremie*' pipe. Concrete or topsoil will be used as a cap for the remainder of the borehole to the surface.

Cuttings from the drilling operations will be thin spread on the site.

### **3.3 Preparation of Report**

Upon completion of site activities, a report will be prepared and submitted to NDIC that will include the following:

- Site plan showing pertinent site features;
- Decommissioning date;
- Personnel on hand;
- Procedures used in the field;
- Plugging materials used;
- Measurements made, depths encountered, fluids pumped,
- Analytical laboratory results;
- Field location of the borehole;
- Water quality analyses results, if any; and,
- Recommendations concerning further action, if necessary.

Terracon is prepared to commence work on this project following notification to proceed. We anticipate completing the field activities in approximately two days per borehole. The report will be available approximately ten business days upon returning from the site. This written report will reflect results, findings, and recommendations, and, as such, will take precedence over any verbal reports that Terracon personnel may have provided. The analysis, comments, and recommendations presented in the written report will be based on the information collected as discussed in this work plan.

### **3.4 General Considerations and Limitations**

Terracon's services will be performed in a manner consistent with generally accepted practices of the environmental profession. Terracon makes no warranties, expressed or implied, regarding its services, findings, conclusions or recommendations. Please note that Terracon does not warrant the work of laboratories, regulatory agencies or other third parties supplying information used in the preparation of the report. These CAP services will be performed in accordance with the scope of work agreed with you, our client, as set forth in this work plan.

Findings, conclusions, and recommendations resulting from these services will be based upon information derived from on-site activities and other services performed under this scope of work; such information is subject to change over time. Certain indicators of the presence of hazardous substances, petroleum products, or other constituents may have been latent, inaccessible, unobservable, non-detectable, or not present during these services, and we cannot represent that the site contains no hazardous substances, toxic substances, petroleum products, or other latent conditions beyond those identified during this CAP. Subsurface conditions may vary from those encountered at specific borings or wells or during other surveys, tests, assessments, investigations or exploratory services; the data, interpretations, findings and our recommendations are based solely upon data obtained at the time and within the scope of these services.

## **4.0 COMPENSATION**

The Scope of Services outlined in this work plan will be performed on a time and materials basis estimated at \$21,090.00. Do to the fact that there are several unknowns associated with regard to the availability of groundwater and borehole depth at the site, a 20% contingency of \$4,218.00 has been added to the total cost. If, as a result of these services, additional work is required outside the scope of this work plan, you will be contacted, and upon request, proposed costs for additional work will be provided if costs are estimated to exceed \$25,308.00 (20% contingency). Client authorization will be obtained prior to commencement of any additional work outside the scope of this work plan.



<b>ESTIMATED COSTS</b>	
Consulting Costs (includes preliminary site visit, CAP, project management, travel and field services, and report preparation)	\$ 9,000.00
Drilling Services (includes over-drilling, disinfecting, and plugging one borehole to a maximum depth up to 200') and Equipment Mobilization (one trip)	\$ 10,090.00
Location and excavation services (includes landscaping repair)	\$ 0.00
Expenses	\$ 2,000.00
<b>Estimated Cost</b>	<b>\$ 21,090.00</b>
<b>20% Contingency</b>	<b>\$ 4,218.00</b>
<b>Total Estimated Cost</b>	<b>\$ 25,308.00</b>

Subcontractor and other direct costs include a 15% handling fee. The project cost summary is based on the scope of services outlined in this work plan. This work plan and cost estimate were prepared based on the following assumptions:

- NDIC will provide to Terracon, prior to mobilization, legal right of entry to the site (and other areas if required) to conduct the scope of services.
- NDIC will notify Terracon, prior to mobilization, of any restrictions, special site access requirements, or known potentially hazardous conditions at the site (e.g., hazardous materials or processes, specialized protective equipment requirements, unsound structural conditions, etc.).
- The estimated cost assumes that the proposed scope of work can be completed during two mobilizations due to unknowns.
- Utilities on private land that are not located by public companies will be located by property owner/operator.
- Work can be performed during normal business hours (Monday through Friday, 7:00 am to 7:00 pm).
- Traffic control services are not required.
- The site is readily accessible by track-mounted drill rig.
- Transportation and disposal of removed soil cuttings and/or development water and other waste materials are out-of-scope services and not included in this proposal.

If any of these assumptions or conditions are not accurate or change during the project, the stated fee is subject to change. Please contact us immediately if you are aware of any inaccuracies in these assumptions and conditions, so that we may revise the work plan or fee.

## 5.0 GENERAL COMMENTS

The proposed scope of work will be completed under the existing Contract dated September 1, 2015 between Terracon and the State of North Dakota. This work plan is valid for 60 days from the date of this work plan. We appreciate the opportunity to provide this proposal and look forward to working with you on this project. If this work plan meets with your approval, please sign the attached Task Order and return a copy to our office via email, fax 701-282-9635, or mail to our Fargo office.

If you should have any questions or comments regarding this proposal, please contact either of the undersigned.

Sincerely,  
**Terracon Consultants, Inc.**



Leif H. Schonteich  
Environmental Department Manager



Dan C. Nebel, P.G.  
Principal

Attachment: Task Order  
Exhibit 1 – Topographic Map  
Exhibit 2 – Site Diagram

## MASTER SERVICES AGREEMENT

### TASK ORDER

This TASK ORDER is issued under the MASTER SERVICES AGREEMENT (dated 09/01/2015, agreement reference number 110.7-15-004) between State of North Dakota ("Client") and Terracon Consultants, Inc. ("Consultant") for Services to be provided by Consultant for Client on the NDIC 1359-10 Borehole Sealing project ("Project"), as described in the Project Information section of the Consultant's Task Order Proposal dated 11/11/2016 ("Task Order Proposal") unless the Project is otherwise described below or in Exhibit A to this Task Order (which section or Exhibit are incorporated into this Task Order). This Task Order is incorporated into and part of the Master Services Agreement.

#### 1. Project Information

See Corrective Action Plan (Terracon Project No. M1167113A) dated November 11, 2016.

#### 2. Scope of Services

The scope of Services to be provided under this Task Order are described in the Scope of Services section of the Consultant's Task Order Proposal, unless Services are otherwise described below or in Exhibit B to this Task Order.

See Corrective Action Plan (Terracon Project No. M1167113A) dated November 11, 2016.

#### 3. Compensation

Client shall pay compensation for the Services performed at the fees stated in the Task Order Proposal unless fees are otherwise stated below or in Exhibit C to this Task Order.

See Corrective Action Plan (Terracon Project No. M1167113A) dated November 11, 2016.

All terms and conditions of the Master Services Agreement shall continue in full force and effect. This Task Order is accepted and Consultant is authorized to proceed.

Consultant: Terracon Consultants, Inc.  
By: *Leif H. Schonteich* Date: 11/11/2016  
Name/Title: Leif H. Schonteich, CSP / Environmental  
Department Manager  
Address: 860 9th St. NE Unit K  
West Fargo, ND 58078  
Phone: (701) 282-9633 Fax: (701) 282-9635  
Email: Leif.Schonteich@terracon.com

Client: State of North Dakota  
By: \_\_\_\_\_ Date: \_\_\_\_\_  
Name/Title: Cody VanderBusch / Reclamation Specialist  
Address: 600 East Boulevard Avenue, Dept. 012 14th  
Floor Capitol Tower  
Bismarck, ND 58505-0310  
Phone: (701) 328-8020 Fax: \_\_\_\_\_  
Email: cwvanderbusch@nd.gov

Reference Number: M1167113A



TOPOGRAPHIC MAP IMAGE COURTESY OF  
THE U.S. GEOLOGICAL SURVEY  
QUADRANGLES INCLUDE: TRENTON NW, ND  
(11/1974).

DIAGRAM IS FOR GENERAL LOCATION ONLY,  
AND IS NOT INTENDED FOR CONSTRUCTION  
PURPOSES

Project Manager: LHS	Project No. M1167113A	 860 9 <sup>th</sup> Street NE, Unit K West Fargo, North Dakota 58078	TOPOGRAPHIC MAP	Exhibit
Drawn by: LHS	Scale: 1"=2,000'		NDIC 1359-10	1
Checked by: JBE	File Name: NDIC 1359-10.pdf		NE¼ of S34-T155N-R103W	
Approved by: DCN	Date: 11/10/16		Williams County, North Dakota	

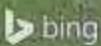


● BOREHOLE

Pinpointed. Actively flowing



250 feet



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<p>AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS</p> <p>DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES</p>	<p>Project Manager: LHS</p>	<p>Project No. M1167113A</p>	 <p>860 9<sup>th</sup> Street NE, Unit K West Fargo, North Dakota 58078</p>	<p>SITE DIAGRAM</p>		<p>Exhibit</p>
	<p>Drawn by: LHS</p>	<p>Scale: AS SHOWN</p>		<p>File Name: NDIC 1359-10.pdf</p>	<p>NDIC 1359-10 NE¼ of S34-T155N-R103W Williams County, North Dakota</p>	
	<p>Checked by: JBE</p>	<p>Date: 11/10/16</p>				
	<p>Approved by: DCN</p>					