HYDROIL SOLUTIONS
BRINGING GREEN TO THE OIL & GAS INDUSTRY

Clean Sustainable Energy Authority
North Dakota Industrial Commission
600 E. Boulevard Ave. Dept 405
Bismarck, ND 58505

Attention: Mr. Alan Anderson

Mr. Anderson,

Hydroil Solutions appreciates your assistance with the CSEA application process and your consideration for a $2,500,000 grant to be applied toward our slurry fracture injection (SFI) facility in McKenzie County. The facility will offer a local and environmentally responsible option to dispose radioactive waste generated by in-state oil and gas exploration and production activities, but currently hauled to out-of-state landfills.

Successful implementation of this project will bring tremendous value to the state of North Dakota by preserving its natural resources, the North Dakota O&G industry by ensuring its autonomy, and the local community by providing 25 high-paying careers.

Any funds awarded will be used toward the equity required to execute a construction-to-permanent loan with Byline Bank, in Chicago. Byline is using a combination of USDA and SBA guaranteed financing to fund 60% of the project cost. The CSEA grant funds will be used to match Hydroil's equity contribution needed for loan closing.

As part of our application, some confidential information has been provided in a separate attachment clearly marked 'confidential.' This information has taken years and substantial capital investment to accumulate, and we appreciate the Authority's discretion in disseminating this material.

Again, we appreciate your assistance and consideration of our request. Please feel free to contact me with any questions.

Sincerely,

Scott Mead

Scott Mead
Executive VP, Hydroil Solutions LLC
808-658-6950
scottm@hydroil-solutions.com

Clean Sustainable Energy Authority

North Dakota Industrial Commission

Application

Project Title: Hydroil McKenzie #1
Slurry Fracture Injection
TENORM Disposal Facility

Applicant: Hydroil Solutions LLC
a North Dakota company

Date of Application: 1 March 2022

Amount of Request

Grant: $2,500,000

Total Amount of Proposed Project:

$13,852,914

Duration of Project:

7-month construction period
15 to 20-year operational life

Point of Contact (POC):

Scott Mead

POC Telephone:

808-658-6950

POC Email:

scottm@hydroil-solutions.com

POC Address:

PO Box 23
Hoolehua, HI 96729

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ABSTRACT

Background:

Hydroil Solutions LLC (Hydroil) is a North Dakota company looking to provide a service to the oil and gas industry currently absent in the Bakken oilfield. Using slurry fracture injection (SFI) technology, Hydroil Solutions will offer an in-state, environmentally responsible option for permanent disposal of oilfield waste. Historically, oil and gas (O&G) exploration and production (E&P) have taken the spotlight in energy production in North Dakota with very little attention given to downstream processes such as oilfield waste disposal. The maturity of the Bakken shale oil play over the last 10 years has revealed gaps in the industry which need to be filled to ensure North Dakota's position as a clean energy leader.

Although still producing over 1,000,000 barrels of oil every day, North Dakota has neither the regulatory nor physical means to handle all the waste associated with its production level, leaving the industry vulnerable to decisions by forces outside the state that can have a tremendous impact on in-state oil production. Furthermore, regardless of its ultimate destination, the waste is buried in surface landfills which pose numerous short and long-term environmental challenges. Successful completion of this project will demonstrate that SFI technology solves many of the logistic, economic, and environmental issues facing the North Dakota O&G industry waste disposal process.

Hydroil Solutions pioneered SFI technology in North Dakota, having introduced SFI disposal geomechanics and procedures to the NDIC in 2017. Unsatisfactory results from previously failed waste injection projects in the state made the task of demonstrating the benefits of the technology very difficult. Our successful appeal required multiple joint meetings with the NDIC, Hydroil, and other various industry experts to prove the efficacy of the technology. In June 2019 Hydroil Solutions became the first company in North Dakota to obtain a set of approved orders (petroleum waste processing plant, Injection well, and bonding) to build and operate a SFI facility, the economic climate over the past two years, coupled with the SFI process being new to the industry in the area, made it difficult to obtain funding for the project and our orders expired.

For this project, we have newly approved orders from the NDIC as well as a long-term lease for 10 acres of the Anytime Hydroexcavation property, located just off US highway 85 in McKenzie County. Our goal is complete fundraising by June 2022 to purchase equipment and begin construction this summer for a February 2023 opening and commencement of operations. Geomechanical data suggests the target disposal area has three separate zones, each with a five to seven-year capacity giving the project an anticipated 15 to 20-year operational life. Based on knowledge of our prospective customers' current volumes and cost structures, we are confident the project will have a strong positive cash flow within the first year of operations.

Hydroil is led by Jake Anderson, CEO, who has 15 years of upper-level business management with a top 10 Fortune 500 company and over a decade of real estate investment experience; Gary Woolsey, COO, who has over 35 years of experience designing and executing SFI waste disposal facilities; and Scott Mead, EVP, who brings 10 years of commercial finance experience. Hydroil has also contracted with a select group of specialized industry experts to ensure the project's environmental and technical integrity (see Participant section below).

Objective:

The objective of this project is to construct and operate a SFI facility to permanently dispose of oil and gas waste generated from exploration and production activities in the most environmentally friendly and cost-effective means available.

The Hydroil Solutions facility will solve four key problems for the North Dakota O&G industry:

1. Our technology is the most eco-friendly method to permanently dispose of O&G waste – no landfills leaching into the water table or unsightly artificial hills of waste. Additionally, we estimate in-state disposal will reduce CO2 emissions 25,000 MT/year through reduced truck traffic
2. We are ensuring the autonomy of the North Dakota O&G industry. The state of North Dakota does not have the regulatory or physical means for the disposal of radioactive or hazardous waste streams generated during oil and gas exploration and production, forcing producers and waste accumulators to haul the material out-of-state. Our project creates a safe and efficient means to locally dispose of the waste.
3. We will save the industry millions of dollars by vastly reducing the distance the material is transported. Keeping this wealth in state boosts taxable revenue and provides 25 high-paying careers for the facility.
4. Our facility, unlike any other in the Bakken, can accept ANY kind of solid or fluid O&G waste, making us the only 'one-stop-shop' in the area, minimizing the logistical complexity for waste disposal and consequently reducing the amount of illegal dumping.

By achieving these objectives, the Hydroil McKenzie #1 facility would help the State and O&G industry achieve their common goal of net-zero emissions and carbon neutrality, continuing to advance North Dakota as a clean energy leader.

Expected Results:

This local option for technologically enhanced naturally occurring radioactive material (TENORM) disposal can remove 25,000 MT of carbon emissions annually from the atmosphere by eliminating 1,000,000 miles of truck traffic each year. The facility will also help North Dakota be a good neighbor to Montana, Colorado, and Idaho, as well as bolster the local economy. During the seven-month construction phase, millions of dollars will be injected into the local economy and dozens of jobs across multiple trades will be supported. While in operation the site will be well staffed with 25 full-time employees who will set the standard of professionalism in the oil and gas waste disposal business.

Perhaps the most subtle yet far-reaching impact of this project is it that will add wealth and benefits to the future of North Dakota by making it less vulnerable to the states of Colorado, Montana, Idaho, and others in the event these states refuse to continue to except TENORM waste from the Bakken. All of these states have had discussions and or bills brought before the legislature to reduce or eliminate North Dakota oil and gas waste disposal in their states.

Duration:

The scope of the project consists of four phases: pre-development, equipment procurement and construction, training and safety checks, and standard operation. Hydroil Solutions has invested over $1,500,000 over the past 3 years to complete the pre-development phase and is now shovel-ready at its first site in North Dakota. Funding assistance from the Clean Sustainable Energy Authority will allow us to move into equipment procurement and through to the standard operations phase see Gantt chart in Appendix 4).

- Pre-development (3+ years - **Completed**)
    - Site selection and acquisition
    - Technical feasibility study (TFS)
    - Front end engineering and design (FEED)
    - NDIC orders / Underground Injection Control (UIC) permit
    - Site engineering and design
    - Capital expenditure/equipment list
    - Contractor engagement/Vendor selection
- Equipment procurement and site construction (7 months)
    - Order long-lead items/material sourcing
    - Subcontractor bid cycle
    - Well drilling (Class IV injection)
    - Site work and building construction
    - Equipment and tank battery installation
    - Instrumentation and monitoring equipment
- Training and safety check (3 months)
    - Hire and train supervisory personnel 90 days prior to operations
    - Hire and train crew members 60 days prior to operations
    - Safety training for all site personnel and management
    - Facility start-up and equipment check
- Normal operations (15-20 years)
    - Facility will operate 24/7/365 with the exemption of select holidays
    - Projected injection volume of 100,000 bbls/mo of slurry with capacity for 450,000 bbls/mo

During his 37 years in the oilfield, Hydroil Solutions COO, Gary Woolsey, has developed a vast network of relationships with world-class engineers, manufacturers and equipment suppliers required for this type of facility. He has made routine product and material price and availability inquiries to ensure budget and timeline integrity. Hydroil Solutions has engaged KT Construction Services as the general contractor for all aspects of the site development, building construction, and equipment installation. To ensure both the drilling process and final well completion quality, Hydroil Solutions has engaged Neset Consulting Services.

After obtaining a funding source, Hydroil will begin the second phase and order long-lead items, begin the subcontractor bid process, and schedule the well drilling. Once weather permits, site work and building will commence . Total duration for this phase is expected to be six to seven months. Long-lead time equipment, such as the high-pressure pumps, can take six months to arrive; it must be ordered at the beginning of the construction phase. Site work, construction, and equipment installation are scheduled for the last four months of phase two. The facility is comprised of several basic structures over a 10-acre site, minimizing the complexity of the construction phase (see Facilities section below). Site preparation (grading, utilities, and roadways) and concrete for the receiving pit, equipment pads, and tank retention area account for most of the construction budget. Securing funding will also allow us to initiate the interview and hiring process.

Phase three of the project will begin during final equipment installation. Operational and sales managers will be hired three months before operations commence with crews 30 days later. Employees and management will be trained in operational procedures and safety practices for 60 days prior to opening. Once crews and supervisors are properly prepared, facility start-up and equipment check can begin.

Five crews of four, plus two supervisors, will operate the facility 24/7 most days of the year with minimal planned closures for holidays and routine maintenance. The facility will be clean, well-lit, user friendly and will set the new standard for professionalism in the oil and gas waste industry.

Total Project Cost:

The total cost of the project from predevelopment to operations, including three months' operating reserve, is $13,852,914 (see Appendix 1 for Sources and Uses). To date, Hydroil has invested over $1,500,000 in predevelopment costs and continues increasing its equity to advance the project. A grant from the CSEA of $2,500,000 will accelerate the project by providing the remaining equity to close the construction-to-permanent loan currently offered by Byline Bank (see Budget section on page 23).

Participants:

For completion of this project, Hydroil Solutions has partnered with the following :

GMJS Services – Gary Woolsey, Hydroil COO, is owner of GMJS services and is partnering with Hydroil Solutions as the design and operational arm of the project. Mr. Woolsey has 37 years of experience in the oilfield industry with 25 years specifically with SFI operations. This will be his 102nd SFI project.

Frederickson and Byron – Mr. Lawrence Bender has been instrumental in submitting and presenting the project to the North Dakota Industrial Commission.

Terralog Technologies, Inc. - Terralog Technologies Inc. (TTI™) is a service company focused on the development and implementation of technologies for Sustainable Energy Resource Development. TTI's area of expertise is Clean-Energy Geomechanics. TTI has developed a technology portfolio with multiple applications using its innovative technologies. TTI's services are built on extensive experience in geomechanics, geology, fracture mechanics, and environmental management with practical field experience.

NorthLand Environmental - NorthLand is based in West Fargo, North Dakota, and specializes in environmental services including environmental due diligence, remediation, compliance, and permitting. NorthLand is owned by Brandyn Ehlis, a licensed civil engineer who has over 15 years of experience as an environmental consultant. NorthLand has worked with Hydroil Solutions and its partners in the preparation of its various SFI-related applications and other environmental due diligence and permitting activities, and will continue to provide those services, among others, during the construction and operation of any SFI-related ventures completed by Hydroil Solutions. NorthLand prides itself in providing the highest standard of quality for its clients, which will be further exhibited through its work with Hydroil Solutions on this SFI facility.

Footprint Environmental - Mr. Shoemaker, founder of Footprint Environmental, LLC, specializes in providing services related to sustainability, environmental compliance, renewable energy, and climate change. Mr. Shoemaker has experience with multimedia environmental compliance (air,water, and waste) auditing and permitting; brownfield projects, climate change analysis; environmental compliance program development; due diligence; ambient air, soil, vegetation, and water quality sampling and analysis; spill prevention, control, and countermeasure (SPCC) plan development; and storm water pollution prevention plans (SWPPPs). His experience includes industries such as manufacturing, food and agriculture, municipal, and biofuels with a specialty in aviation. His sustainability experience has focused on mapping strategies and actions to align organizational goals and operations using quantitative data. Using his knowledge of sustainability reporting frameworks coupled with process operations and financial analysis, Mr. Shoemaker has extensive experience evaluating and developing business strategy for startups, government organizations, and corporations. Mr. Shoemaker emphasizes and supports development of data collection processes to implement and manage sustainability programs at an organization-wide level. Additional project experience includes custom reporting and dashboards, energy action plans, feasibility analyses, guidance development, greenhouse gas (GHG) inventories, lifecycle assessments, project financial analysis, stakeholder engagement, resiliency, and sustainability reports. Mr. Shoemaker graduated with a Bachelor of Science in Chemical Engineering from Georgia Institute of Technology in 2002 and a Master of Business Administration with a dual concentration in finance and entrepreneurship from Georgia State University in 2010. Mr. Shoemaker is a licensed professional engineer in the State of Georgia.

JFK Consulting Services- Mr. Kouba is a registered professional engineer in 19 states. He brings over 40 years of professional experience and has built multiple facilities for major operators in multiple oilfield basins. He has a MS in Civil & Environmental Engineering and Hydraulics/Hydrology from the University of Wisconsin-Madison and a BS in Civil & Environmental Engineering from University of Wisconsin-Madison.

KT Construction - Mr. Thomas brings over 30 years of construction and architectural experience. Mr. Thomas has been employed by Nabors Industries, Kinder-Morgan, General Atomics, and Coca Cola, as well as other major Bakken Operators to build their facilities. He has recently participated in the building the new Executive International Airport Facility in Williston. He employs nearly 80 people and

has been active in North Dakota for the last seven years. He obtained his education from Mississippi State University.

Neset Consulting Services - Neset Consulting Service Inc. will be the most recognized and respected Consulting and Service Company in the Williston Basin, Rocky Mountain Region, and beyond. Providing our clients with the most reliable, efficient, experienced, and safety conscious consultants – supervised by Petroleum Engineers. Neset Consulting provides many different services including Engineering services, Gas Detection Services, Geology on well sites during the drilling process, Geological Analysis, Reservoir Analysis, HSE Analysis Inspection and Reporting, Air Quality Inspection and reporting and much more. President Kathleen Neset started Neset Consulting Service in Tioga ND keeping the operator in mind and developing relationships with many different operators over the last three decades. Kathleen Neset and Neset Consulting Service keep quality control, the client, and safety the number one priority in anything we do.

PROJECT DESCRIPTION

Objectives:

The primary objective of the project is to permanently dispose of oilfield waste, specifically NORM and TENORM material, in the most environmentally responsible and cost-effective method available. Secondary objectives include ensuring North Dakota's oil production autonomy, providing 25 careers for the local community, increasing State tax revenue, and delivering strong investor returns.

Methodology:

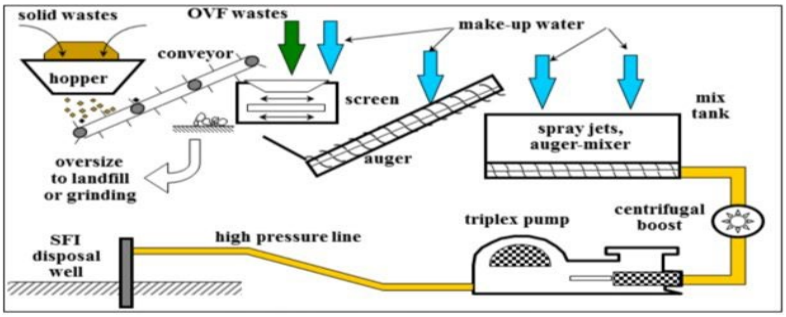
Processes from O&G operations, whether upstream, midstream, or downstream, generate millions of tons of oilfield waste each year. These wastes are primarily in the form of fluids and solids requiring removal, treatment, and disposal. Waste streams from many of these wells are disposed of by the mechanical and/or chemical removal of the liquids for re-cycle or re-use (if possible) or other costly recovery methods. The remaining solids are buried in large corporate landfills, farmlands or, depending on toxicity levels, left on the drilling location (pit burial). These disposal practices have the approval of most regulatory agencies and have been the standard disposal method for many decades. Increasing regulations, environmental impact, industrial eyesores, and continued risk exposure have led many states to impose stricter regulations which restrict the type of waste that can be processed and /or allowed for traditional waste burial.

The U.S. Department of Energy (DOE) has the responsibility for ensuring there is an adequate and affordable supply of energy for the nation. One of the DOE's mission goals is to identify and support technologies that help produce oil and gas with less environmental impact and exposure. Part of that mission is to evaluate promising technologies for management of drilling wastes One such technology that has been used since the early 1990's is the underground injection of drilling waste, or SFI.

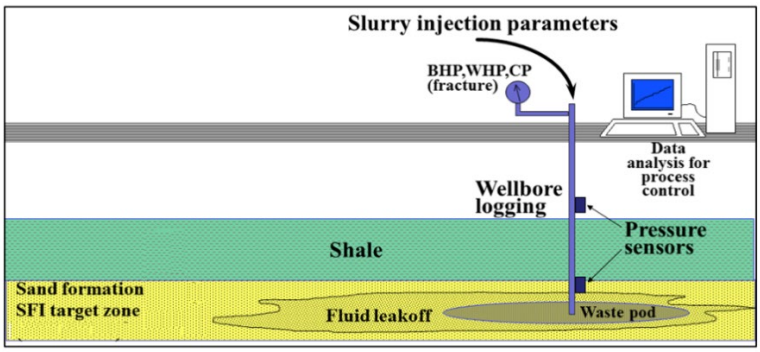
SFI has been called by many different names including but not limited to:

- Slurry Fracture Injection (SFI)
- Cuttings Re-Injection (CRI)
- Waste Injection (WI)
- Slurry Injection
- Drill Cuttings Injection (DCI)
- Disposal by Injection

All forms rely on the specific process of taking a homogeneous slurry mix injected into a suitable recipient subsurface geologic formation at a pressure high enough to continuously fracture the formation then deposit the waste. These formations have undergone extensive geologic study to receive the slurry and the waste material is cocooned in a subterranean vault.



On the surface, the waste streams are mixed into a slurry with an aqueous carrier fluid using a surface processing unit. This slurry is introduced into a reciprocating slurry pump capable of achieving high pressures and pumped into the wellbore.



The fluid rapidly dissipates into surrounding the formation allowing injection pressure to disappear quickly. This leaves no long-term remnant of pressurization. The solid waste remains behind, entombed permanently by the weight of the

The most common forms of Slurry Fracture Injection involve either:

(1) Dedicated well – The SFI method whereby a slurry is pumped into a chosen geologic formation with a dedicated process site and well used solely for waste disposal

(2) Annular injection - waste slurry is injected through the annular space between two casing (pipe) strings into the receiving formation (rarely used for commercial disposal)

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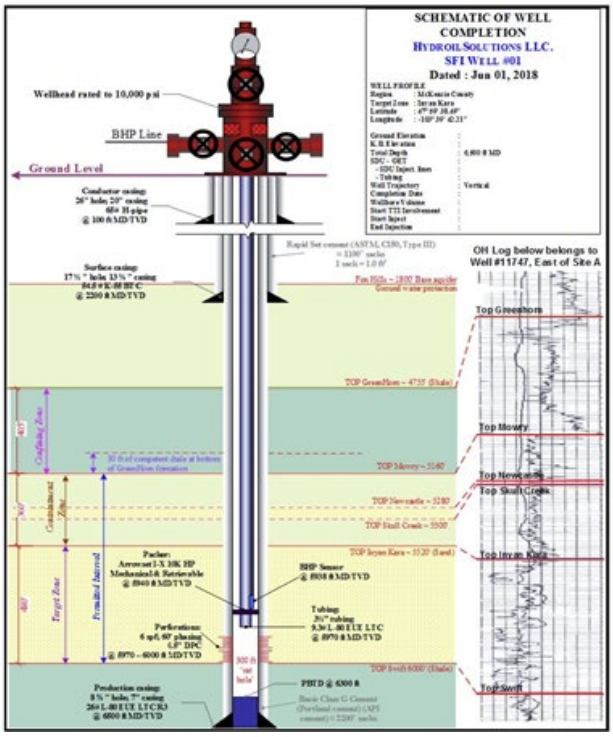
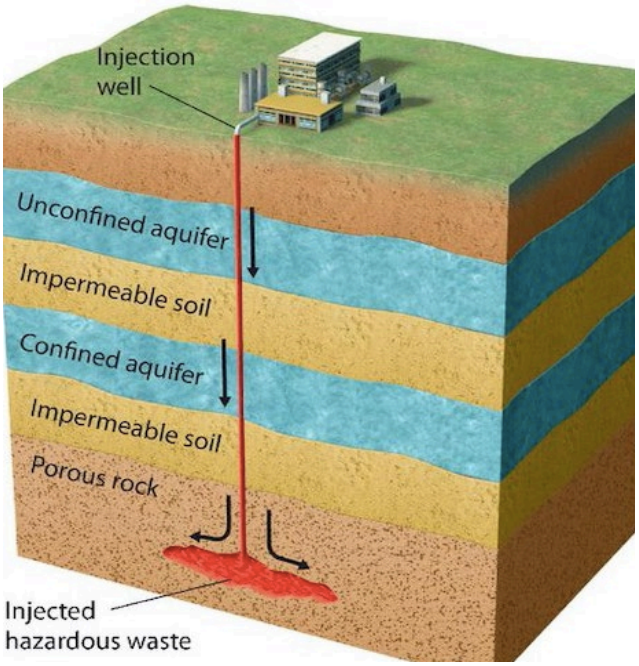
State-of-the-art SFI operations include intensive front-end engineering, subsurface modeling, and slurry stability studies to guide project design. This data helps establish parameters for a stable, “injection grade” slurry which ensures the waste remains entombed in the subsurface formation. During operations, continual pressure monitoring and recording are utilized to assure optimization and provide feedback for continuous improvement of operating procedures. When the injection or pumping operation ceases, the pressure in the formation declines as the fluid bleeds off through the porosity of the rock into the surrounding formations under the weight of the formation pushing down squeezing the fracture to close, and the solids are trapped in place in the induced fractures as shown here in the next diagram.



Dedicated SFI well example

This is the design choice for the **Hydroil Solutions** injection well



Subterranean disposal pod

Pressure from the weight of the layers of impermeable rock permanently entomb the waste safely, deep in the ground

Three factors must be integrated to ensure the success of the SFI operation in terms of disposal of the waste material, formation injectivity, in situ containment, and the optimization of formation storage capacity:

- Type and suitability of geology for SFI disposal (below)
- Suitability of a waste material for SFI disposal (see page16)
- Volumes of waste to be injected (see page 17)

Based on environmental and operation considerations, ideal SFI stratigraphy consists of the following:

- Target Zone: the formation in which direct injection of slurry will occur; this formation is the primary disposal zone. Waste material will be deposited in this zone, and over time the disposal of injected material will coalesce into a waste pod.
    - For large volumes of waste to be injected (greater than 12,000 bbls/month) the target formation should be poorly consolidated with a high compressibility to ensure that the formation yields easily during injection operations. The mechanical yielding of the formation will allow insertion of waste/ slurry

volumes at optimum formation injectivity. These zones will have a high permeability where fluids can drain off quickly during injection. This characteristic prevents high formation pressures and stress gradients from building up, which can cause inadvertent formation fracturing, OOZI (Out-Of-Zone Injection) or shearing resulting in wellbore failure.
    - For large volumes of granular or viscous fluid wastes, thick, laterally continuous, and unconsolidated sands are usually required for the successful implementation of the SFI process.

- Containment Zone: an interval of alternating sands and shales above the Target Zone. Injected fluids/slurry from the SFI operations may indeed 'leak' uphole over time due to loss of hydraulic isolation of the disposal well (such as cement integrity) or due to vertical growth of the fracturing events during the injection operations; SFI process attempts to limit vertical growth and OOZI. The Containment Interval is permitted such that fluid migration into this interval is permissible and acceptable (secondary SFI target zones may initially comprise part of the Containment Interval). The alternating sands and shales provide effective fluid flow and stress barriers that will mitigate the vertical migration of injected fluids and material.
    - The 'Permitted Interval' is defined as the top of the Containment Zone to the bottom of the Target Zone. Injected slurry/material is allowed to access the Permitted Interval during SFI operations.

- Confinement Zone: a relatively thick (5 – 15 ft) of competent, low permeability formation (i.e. shale) that 'caps' the Containment Zone interval.
    - This confining interval provides an effective seal or cap rock to the deep well disposal operations. Injected fluid is not allowed to migrate past this zone
    - Generally, shales provide effective caps, as stress barriers. The low permeability associated with shale prevents upward migration of fluids. Shale typically has a higher stress gradient than the adjacent sands. Hence, the 'stress differential' between the sand Target Zone and the shale caprock is high, which prevents vertical fracture propagation out of the SFI containment interval.
    - Additionally, shales provide good wellbore hydraulic integrity once cemented. Due to the low permeability of shales, the cement is able to achieve good cement to casing and cement to formation bonding.

The preferred geological characteristics of a SFI Target Zone are as follows:

• A thick, unconsolidated sandstone bed. This ensures that fracture propagation pressures will be minimal, and that there is sufficient capacity to accommodate large volumes of wastes in the SFI well.

• A formation that is laterally continuous to ensure substantial capacity for storage and for leak-off of fluids expelled from the slurry. This provides for adequate leak-off capacity.

• A formation that is permeable enough in the lateral and vertical directions so that the pressures induced by each SFI injection can leak-off adequately within a 10 to 12-hour shut-in period before another injection is undertaken. This ensures that no long-term pressurization takes place.

• A formation that has a low horizontal stress but overlain by shaley strata that have higher lateral stress. This will promote lateral fracture propagation in the injection zone, rather than vertical propagation into the overlying shale.

• A formation that is approximately horizontal, not intersected by large faults, and is overlain by ductile shale and claystone that are impermeable, restricting vertical flow. Furthermore, the ductility means that strains in the overburden induced by injection into the unconsolidated sandstone (Target Zone) can be accommodated without impairing the sealing characteristics of the shales.

• An injection formation that has a large vertical extent (thickness) such that injection can take place in the lower 25% section of the interval, leaving a thick, high – permeability section above the perforations. (These criteria guarantee that vertical propagation is severely limited by the presence of sufficient high leak-off capacity strata).

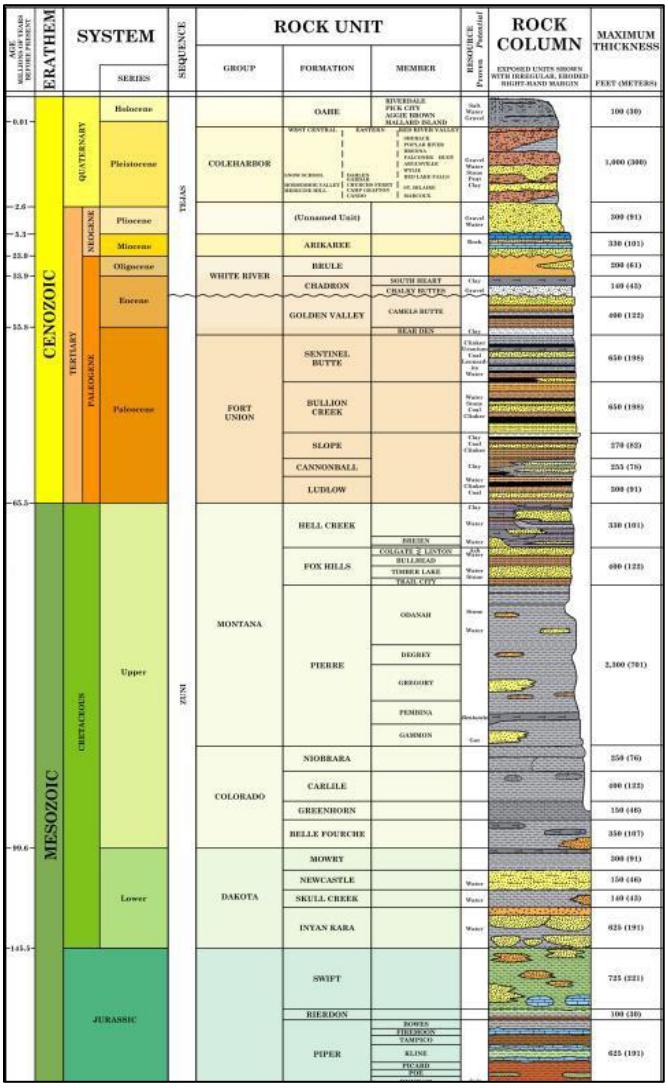
Therefore, in summary, the ideal target formation for a SFI project should have most of the following characteristics:

- Relatively thick (100+ ft) of unconsolidated sands without hydrocarbons
- High porosity (25%), high permeability (500 mD)
- Relatively high geomechanical compressibility (1.0x10-6 kPa-1)
- Normal or low stress/fracture gradient (low rock strength)
- Good lateral extent in a region that is relatively uniform without an extensive network of potentially leaking faults

Based on numerous reports posted on the NDIC website, the Dakota group (Inyan Kara) is approved for UIC Class II injection wells. The Inyan Kara (IK) composes the later part of the Dakota Group, located in the Lower Cretaceous Period. The Inyan Kara is typically unconformable above the Jurassic group, but conformable below Skull Creek formation. The lowest ground water aquifer is Fox Hills formation at the top of the Cretaceous period.

Typically, the depth of the Fox Hills formation averages 1,500 ft deep – which leaves approximately a 4,000-foot interval between the bottom of Fox Hills to The IK (Inyan Kara) contains multiple lithologies due to the depositional environment. At the top of the IK, a claystone, with planar laminated siltstones noted within. Some trough cross lamination as well as bioturbation is noted. Below that, a carbonaceous claystone is noted, with laminated, thinly bedded siltstones throughout. Below the claystone is the sandstone section of IK. Below the sandstone section, a coaly claystone is noted followed by a carbonaceous oxidized claystone. The sandstone layer can further be divided due to the changing depositional environment. At the top of the sandstone section, a very fine grained, silty sandstone with muddy laminations and vertical burrows is noted. Below that are interbedded, laminated claystone with some wavy laminations and vertical burrows. That is followed by a fine-grained, coarse, oxidized sandstone. This deepest sand layer within the Inyan Kara is the proposed SFI Target Zone as detailed herein.

The NDIC (North Dakota Industrial Commission) provided a stratigraphic type log based on information gathered through numerous wells log. The stratigraphic interval of interest is from the Greenhorn Shale to the bottom of the Inyan Kara Sandstone. The SFI Target Zone will be the Inyan Kara formation. The Containment Zone will be from the top Newcastle to top of Inyan Kara. The confining zone is between top Greenhorn to top Newcastle.



The IK formation formed from incised valleys along the coastline of the Cretaceous Seaway. However, because the Cretaceous Seaway regressed (and transgressed) twice, more and more sands were deposited in the valleys, forming the Dakota group. Within these valleys, a high porosity (24%), high permeability (1,000 mD), thick and continuous sandstone is noted. Within the valleys, gross injection intervals range from 440 – 544 feet thick. Based on log analyses, this converts to 180 – 340 feet thick net pay. Within the interfluvial, a slightly lower porosity and permeability are noted, as well as a thinner sandstone interval. Overall, the IK is a lenticular, thick, somewhat laterally continuous, high porosity and high permeability, fine to coarse grained sandstone.

In general terms, the Williston basin is full of structural features such as domes, anticlines and synclines. It is important to note that these structural features have very little effect on the IK. In the area, the main structural feature is the Nesson Anticline, which trends N-S. Because of this, there is a lot of folding along the anticline below Cretaceous.

SFI Target Zone

The primary target zone for SFI disposal operations is the Inyan Kara Formation. The geological reports and analyses indicate that the Inyan Kara sand interval has excellent potential as a SFI disposal formation. Sand layers within this formation meets the preferred geological characteristics required for a SFI target zone.

SFI Containment Zone & Permitted Interval

The containment zone that is thought to be suitable for SFI operations is from the Top of the Newcastle formation to the bottom of Skull Creek formation (which overlays the IK sand unit). The geological reports and analyses indicate that this interval of formations has excellent potential as a SFI Containment Zone. This formation meets the preferred geological characteristics required for a SFI Containment Zone.

The top of the Containment Zone (Newcastle) to the bottom of the Target Zone (Inyan Kara) will form the 'Permitted Interval'. Typically, the Permitted Interval includes both the target and containment zones, and injected slurry is allowed to access both zones during SFI operations.

SFI Confinement Zone

The Confinement Zone that is thought to be suitable for SFI operations is from the top of the Greenhorn to the bottom of the Mowry, which overlies the Newcastle. The gross thickness is on average 500 ft. These formations meet the preferred geological characteristics required for a SFI Confinement Zone.

This shale will have three functions:

- Provide an effective seal for the deep well disposal operations; injected slurry is not allowed to migrate past this zone.
- Provide a competent and reliable cement seal along the wellbore to ensure ultimate hydraulic isolation of the SFI well.
- Prevent any impact from the SFI operations on any water aquifer zones.

Geological Summary

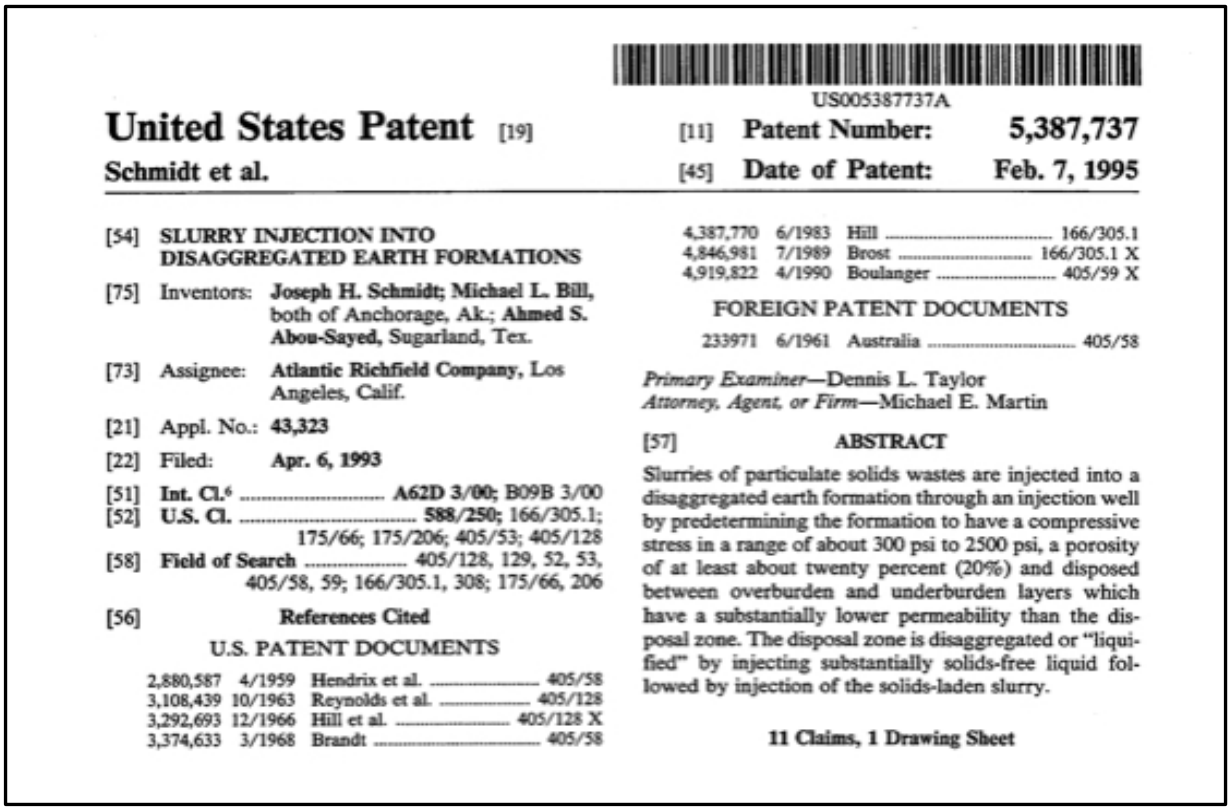
The Inyan Kara has, large interval of disposal zone availability results in formation 'kh' and storage capacity potentials that make this area geologically excellent to initiate the SFI project. SFI disposal well(s) should initially be completed into the bottom portion of the Inyan Kara sand unit. Sufficient geological data has been acquired to determine that the geology in the permitted location is suitable for SFI operations.

Is the Technology Proven?

In many oil and gas production environments operators encounter severe weather conditions and complex logistical issues yet still must deal with wastes in an environmentally friendly manner. The use of SFI for the waste management process has been proven safe and cost-effective in all types of environments.

The technology of disposing of waste via injection into created fractures has been implemented since the early 1990's starting with ARCO/BP in Alaska where drill cuttings were injected into fractures as a way of disposing of drilled waste in remote locations.

The process was patented in 1995.



US005387737A

United States Patent [19]

Schmidt et al.

[11] **Patent Number: 5,387,737**

[45] **Date of Patent: Feb. 7, 1995**

[54] **SLURRY INJECTION INTO DISAGGREGATED EARTH FORMATIONS**

[75] Inventors: **Joseph H. Schmidt; Michael L. Bill**, both of Anchorage, Ak.; **Ahmed S. Abou-Sayed**, Sugarland, Tex.

[73] Assignee: **Atlantic Richfield Company**, Los Angeles, Calif.

[21] Appl. No.: **43,323**

[22] Filed: **Apr. 6, 1993**

[51] **Int. Cl.**[6] **A62D 3/00**; B09B 3/00

[52] **U.S. Cl.** **588/250**; 166/305.1; 175/66; 175/206; 405/53; 405/128

[58] **Field of Search** 405/128, 129, 52, 53, 405/58, 59; 166/305.1, 308; 175/66, 206

[56] **References Cited**

U.S. PATENT DOCUMENTS

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Primary Examiner—Dennis L. Taylor
Attorney, Agent, or Firm—Michael E. Martin

[57] **ABSTRACT**

Slurries of particulate solids wastes are injected into a disaggregated earth formation through an injection well by predetermining the formation to have a compressive stress in a range of about 300 psi to 2500 psi, a porosity of at least about twenty percent (20%) and disposed between overburden and underburden layers which have a substantially lower permeability than the disposal zone. The disposal zone is disaggregated or "liquified" by injecting substantially solids-free liquid followed by injection of the solids-laden slurry.

11 Claims, 1 Drawing Sheet

Figure 1 1995 US Patent for Slurry Fracture Injection

(Note: Inventor Dr. Ahmed Abou-Sayed was the mentor of current Hydroil COO)

SFI has been used in the US since the start of the 21st Century for a variety of waste streams other than oil and gas production including medical, food, and bio-solid wastes. Little known to many people, there are ongoing wells in plain sight, such as the biosolid waste facility in Los Angeles, disposing of waste.

Downtown Los Angeles wellsite

The initial work was sporadic, cumbersome, and done with little or no knowledge of the formations, how to create the induced fractures, or even the disposal capacity. With the advancement in the data of geomechanics and equipment design efficiency, the SFI technology and process has been improved immensely and is now used successfully in numerous locations across the world specifically within the O&G and Energy Industry.

A current example of recent work by Hydroil Solutions team member is a well in West Texas that has injected more than 10,000,000 barrels of waste in just over four years into a single disposal zone in a single recipient formation that has an expected 20-year life cycle.

The orders granted by the NDIC for this facility permit 20,000 barrels of slurry per day to be injected. Geological data suggests the facility's operational limit is closer to 15,000 barrels per day. Our financial projections are conservatively estimated at 2,000 barrels per day with a target volume of 10,000 barrels per day.

Anticipated Results:

The results of this project will further accomplish the Clean Sustainable Energy Authority's mission of commercializing projects that reduce environmental impacts and increase the sustainability of energy production and delivery in several ways.

A local inexpensive, environmentally friendly disposal option will preserve the air by reducing carbon emissions from truck traffic, preserve the land by not contaminating it with a surface landfill, and preserve the water by avoiding leachate and other surface disposal issues by putting the waste back from where it came.

Currently, only one, very limited, facility for TENORM waste disposal exists in North Dakota. KT Enterprises, located at Johnson's Corner in McKenzie County, was the second company to obtain NDIC permission to operate a SFI facility for TENORM waste. Gary Woolsey, Hydroil COO, recognizes the design and equipment as older technology with only a fraction of the processing capacity of the proposed project. The proposed Hydroil facility, having a much better location, site design, and crew size with superior technology, has the capability to process 10 times the waste of the KT Enterprises facility.

Each year the Bakken produces approximately four times the amount of TENORM waste that any one facility, such as the proposed project, can process. The waste disposal piece of the whole oil and gas production endeavor needs to be properly addressed to achieve the goal of net-zero emissions and carbon neutrality. Today, SFI disposal is the industry's best option.

In full operation, the proposed project will increase the sustainability of the O&G industry both environmentally and economically. In addition to preserving North Dakota's natural resources, providing an environmentally responsible method positively affects the attitude of the public which adds to the sustainability of the industry as a whole. The proposed project will further increase the sustainability of the local industry by reducing overall production cost through more economical waste disposal. Dozens of companies will save millions of dollars collectively, supporting community and boosting tax State dollars.

Facilities:

The proposed SFI facility will occupy a 10-acre site and be comprised of three prefabricated buildings (office, driver lounge, and restroom facilities), a simple structure to protect the pumps and operators from the elements, a solids receiving pit, tank battery, and truck wash out (see Appendix 8 and 9 for area map and site plan).

To minimize the effects of increased truck traffic in the area, the facility has been designed to be able to queue up to 20 tractor-trailers on site. One side-dump at the solids receiving pit and up to three tankers of liquid can be serviced simultaneously. This procedural limitation also minimizes the effects of additional traffic by restricting the number of trucks exiting the facility at any one time.

Techniques to Be Used, Their Availability and Capability:

Hydroil Solutions will use the most advanced equipment (mill, pumps, VFDs, instrumentation) to complement Mr. Woolsey's time-tested injection disposal process, a method he developed from participating in over 100 injection disposal projects (see appendix 6 for complete list). In combination with MANUFACTURING CO, Mr. Woolsey has designed a specialized hammer mill for grinding solid particles to the required size to ensure proper formation pressure and optimum storage capacity. From an operational efficiency standpoint, Hydroil's technique of creating and storing a homogeneous slurry for controlled injection is far superior to the more common practice of injecting the waste as the material arrives. Some other techniques and capabilities that have evolved from many decades of disposal by injection include the following:

- Site design minimizing operational and environmental footprints and maximizing process capacity
- Enhanced road construction to minimize dust and dirt tracking from location
- 100% equipment redundancy allowing continual 24/7 operations
- Oil recovery through effective designed atmospheric separator tanks to separate oil & water
- 20,000 bbl on site storage, ensuring volumetric parameters are always correct before injection
- Specialized contaminated fluid tanks for fluids that cannot be processed in standard operations
- Enhanced slurrification design ensuring correct fluid parameters and particle sizing allowing for injecting over 1,000 bbls (200 MT) of solid waste per day
- Dust and airborne particulate suppression systems for environmental and personnel safety
- Hammer mill designed specifically by Hydroil COO for breakdown of solid waste
- Enhanced high pressure pumps for longer lasting wear
- Specialized geomechanical pressure monitoring to maintain daily operations and maximize capacity
- Training of all personnel
- COO Patented operational processing
    - US 8714253 B2, US 20110247804 A1, US 20140209717 A1
- Radiation Safety protocols specific to North Dakota

These techniques allow the project to provide specific standard operating procedures (SOPs) crews will utilize daily to maximize efficiency and safety for long term sustainability. An example SOP, Fluid Offloading Procedure and Process, is attached in Appendix 3:

Environmental and Economic Impacts while Project is Underway:

Environmental impacts of the project during the initial phases are minimal. There are no negative environmental impacts resulting from to construction as the site is already zoned commercial and used by Anytime Hydroexcavation Inc., an oil and gas waste clean-up company. As such, Anytime Hydroexcavation will be our customer in addition to being our lessor.

The construction phase of this project has approximately $5 million allocated for work done onsite, paying North Dakota companies employing North Dakota residents.

Ultimate Technological and Economic Impacts:

The successful execution of this project will demonstrate the ability for SFI technology to solve the TENORM waste problem for the North Dakota oil and gas industry. Providing a local disposal option for *all* the TENORM waste generated in the Bakken will create over 100 permanent jobs, save local businesses millions of dollars each year, and generate a significant amount of tax revenue for the State. Annual salaries for the facility total over $1,500,000 during a year of normal operations, contributing immensely to the local economy and additional forms of tax revenue.

Why the Project is Needed:

The current method of distant transport to out-of-state surface landfill disposal sites is unacceptable. It pollutes the air with CO2 emissions, contaminates the soil, and endangers subsurface water tables. Economically, the industry is exposed to outside forces, the State is losing significant tax revenue, and every year producers and processors are spending millions of dollars that could be saved.

STANDARDS OF SUCCESS

- *Emissions reduction.*
  An estimated 25,000 MT of atmospheric carbon will be eliminated yearly through reduced traffic.
- *Reduced environmental impacts.*
  Implementation of SFI technology results in the preservation of air through reduced emissions, preservation of land by avoiding surface landfills, and protection of groundwater by injecting far below water table.
- *Increased energy sustainability.*
  Environmentally responsible waste disposal is a positive step toward Net-Zero emissions and carbon neutrality.
  Lowering costs will improve industry economic sustainability
- *Value to North Dakota.*
  This project ensures North Dakota's oil and gas production autonomy and demonstrates the State as a clean energy leader.
  Millions more dollars stay in North Dakota (no dump fees in ID or MT) increasing tax revenue.
- *Explanation of how the public and private sector will make use of the project's results, and when and in what way.*
  Local O&G producers as well as treating plants and landfills will collectively save millions annually within the first year of operation by significantly reducing the transport cost of TENORM material and eliminating thousands of miles of truck traffic.
- *The potential commercialization of the project's results.*
  The facility is very profitable at 25% capacity. With the natural layout of the Bakken area and the average annual total volume of waste requiring transport, the Bakken could support 4 or 5 facilities. SFI is also a good candidate for other carbon sequestration and waste disposal needs.
- *How the project will enhance the research, development and technologies that reduce environmental impacts and increase sustainability of energy production and delivery of North Dakota's energy resources.*
  This facility will help maintain North Dakota as a clean energy leader by providing the final piece in

Net-Zero/carbon neutrality goal of energy production, thus improving the sustainability of the oil and gas industry as a whole.

- *How it will preserve existing jobs and create new ones.*
  Directly, the facility will create 25 permanent, high-paying jobs, ultimately contributing millions of dollars to the local economy. The project will preserve jobs in the oil and gas industry by lowering costs for producers and waste processors. Additionally, in the big picture, providing a green alternative for the O&G industry preserves its future by improving its public image.

BACKGROUND/QUALIFICIATIONS

Jake Anderson, CEO

Mr. Anderson has 25 years of corporate experience with over 10 years in executive management. Currently, as Director of Encounter Submissions for CVS, he manages 50 people in the $100 billion division of CVS. Mr. Anderson has also successfully built his personal real estate portfolio over the past decade.

Jake has funded the majority of the start-up costs to date, represented Hydroil Solutions with the NDIC, and has been responsible for organizing the current team. He will continue to ensure the team has the resources required for this facility and for Hydroil Solutions' growth in future markets.

Gary Woolsey, COO

Mr. Woolsey has 37 years of experience in the energy industry with 30 years in oilfield waste management and injection. During his career, he has been VP of Operations and Business Development for Waste Injection for top oilfield service companies like NOV and Schlumberger on projects spanning the globe. Has held nearly every operational and sales positions in waste injection value chain, giving him unique insights into waste management and disposal.

Along with multiple patents for the waste injection process, Mr. Woolsey was co-author of the Society of Petroleum Engineers Monograph for Cuttings Reinjection, the original manual for SFI technology. His understanding of all aspects of the process have allowed him to work with other industry experts to design and manufacture a hammer mill specifically intended for SFI applications. This specialized piece of equipment plays a key role in Hydroil's facility ability to process materials most other SFI facilities cannot and at a high volume with very little down-time. In addition to creating the SOPs for the facility, Mr. Woolsey will oversee facility design, construction, start-up, hiring, and daily operations.

Scott Mead, EVP

Scott Mead was a commercial loan officer at Keystone Mortgage Corporation in their Phoenix, office closing over 500 loans during his five years there. Afterward, Mr. Mead established and managed the commercial loan division at American Mortgage Group for the next five years. During his time in mortgage finance, Mr. Mead built his personal real estate portfolio of single-family rentals, custom home lots, and small apartment complexes. Scott has been instrumental in obtaining the SFI orders, permits and site pre-development. Currently he collects industry data, performs analyses, and creates financial projections in addition to preparing the financial package for investors and lenders.

Terralog Technologies, Inc.
As one of the world's most experienced geomechanical teams for waste injection, Terralog Technologies provides information about the geology of the site, facility process capabilities and limitations, and injection daily monitoring systems. Other projects include the Dammam project for Saudi Aramco, Duri – PT for Chevron Indonesia, and Statoil's Bergen project in the North Sea.

It was the expertise of Terralog Technologies that was able to communicate the reliability of the technology to the NDIC and assisted Hydroil Solutions in obtaining the first set of SFI orders in North Dakota in 2018.

Ktech
Ktech is the collective effort of John Kouba P.E. (JFK Consulting Services), Brandyn Ehlis P.E. (Northland Environmental), and Kevin Thomas Sr. (KT Construction). Through their previous involvement in Hydroil's original effort with the NDIC, these three gentlemen recognized the value of slurry fracture injection and formed an entity specifically intended to manage the environmental and technical aspects of SFI facilities, including:

- Surveys and environmental studies
- NDIC application submission
- Underground injection permit process
- North Dakota Department of Health and
  North Dakota Department of Environmental Quality compliance
- Site design and engineering
- Construction management

A summary of Kevin Thomas Sr.'s experience and previous projects follows:

2013-Current Owner of KT Construction Services
Design and build various style of Commercial and Industrial Office/Shop Combination Buildings, Retail Strip Centers, Office Complexes, Workforce Housing Complexes, and purpose-built facilities.

2000-2013 Owner of KT Buildings
Construction Consultant for Nabors Industries – overseeing all aspects and phases of construction

- Built Workforce housing for over 600 people in 2012
- Install commercial extruded aluminum canopies on schools, hospitals, and military installations for Peachtree Protective Covers
- Installed over 350 Garden Centers on Wal-Mart Super Centers for Hired Hand Technologies
- Built over 200 pole-barn style buildings throughout the Southeastern U.S.

89-2000 Project Manager for Architectural firms

- Designed working drawings for Cobb Theatres, Regal Cinemas, Just for Feet stores, Athletic Attic stores, and various apartments, churches, and shopping centers
- In addition, was also the CAD Manager in charge of customizing and upkeep of all computers

Jobs completed in North Dakota:

- **Go Motel**- Lodge & Full-service Kitchen (workforce housing for 150 men)
- **Nabors**- Lodge & Full-service Kitchen (workforce housing for 450 men)
- **Nabors**- 24,000 sqft truck shop/offices
- **Nabors**- Truck Wash Building
- **Nabors**- Iron Building
- **Nabors**- 30,000 sqft chemical storage building
- **Nabors**- Concrete Bulk Plant
- **Nabors**- truck weigh scales
- **Nabors**- 18,000 sqft Rocky Mtn. Region Corporate Headquarters
- **Nabors Drilling**- 3,500 sqft cold storage facility
- **CSI Inspections**- 35,000 sqft building with offices, truck wash, water reclamation room, equipment installation
- **Loenbro Pipeline Company**- 24,000 sqft shop with 10,000 s.f office
- **Coca Cola Bottling Company**- 53,000 distribution center with 9,000 sqft corporate offices
- **North Dakota Metro**- 2- 12,000 sqft buildings with 1200 s.f of office space in each (for resale or lease)
- **Bekk's Hot Oil Service**- 17,500 distribution center with 6,000 sqft corporate offices
- **Boots Smith Oil Field Service**- 12,500 operating and service center with 3,000 sqft corporate offices
- **General Atomics**- Military Drone Pilot Training Facility and Regional Offices, Grand Forks Air Force Base, 30,000 sf
- **Minot Air Force Base**- 1,408 storage unit facility for each service member on-post, Minot, ND
- **Williston International Airport FBO**- 40,000 sf operating and service center with 6,000 sqft corporate offices
- **U.S. Dept of Homeland Security**- Customs and Border Patrol Point of Entry offices, interview, search, and hold rooms

Additional information specific to each of these gentlemen can be found in the Participants section (p7).

MANAGEMENT

*A description of **how** the applicant will manage and oversee the project to ensure it is being carried out on schedule and in a manner that best ensures its objectives will be met, **and a description of the evaluation points to be used** during the course of the project.*

KT Construction will manage the subcontractor bid cycle and coordination as well as source the materials for site construction. Gary Woolsey is responsible for equipment fabrication/sourcing. Together, KT Construction and Mr.Woolsey will manage the equipment installation and testing procedures.

Mr. Woolsey will oversee the efforts of the sales and operations managers during daily operations. He will also be available for any problems outside the scope of normal operations requiring immediate attention. Please refer to Appendix 3 for our training and certification guidelines and a SOP example.

TIMETABLE

Please provide a project schedule setting forth the starting and completion dates, dates for completing major project tasks/activities, and proposed dates upon which the interim reports will be submitted.

A Gantt chart of project tasks and corresponding capital requirements can be found in Appendix 4.

BUDGET

Project Associated Expense	NDIC Grant	NDIC Loan	Applicant's Share (Cash)	Other Project Sponsor's Share	Total
Predevelopment			$1,500,000		$1,500,000
Pre-operational	$400,846		$252,195	$1,327,607	$1,980,648
Working capital	$123,426		$77,654	$408,787	$609,867
Injection well	$250,953		$157,889	$831,158	$1,240,000
Site work	$221,626		$139,437	$734,027	$1,095,090
Construction	$307,174		$193,261	$1,107,365	$1,517,800
Equipment	$997,965		$627,876	$3,305,269	$4,931,109
Contingency	$198,010		$124,579	$655,811	$978,400
Total	$2,500,000		$3,072,891	$8,280,024	$13,852,914

Please refer to the sources and uses, preoperational budget, and itemized capital expenditures list (appendices 1,2,3) for a detailed use of funds. Preoperational funds are primarily salaries for work performed during the NDIC approval process through the training and safety phases of the project. Working capital is three-months operating cost to have in reserve for customer acquisition and initial revenue collection. Hydroil has routinely checked pricing and availability of equipment and materials to ensure project budget and timeline accuracy.

For the construction phase, funding delays will push the timeline further into winter making the task of training and facility start-up much more difficult. Operationally, each month without this service, the State loses taxable revenue, the industry fails to employ the available means to be autonomous, and delays its goal of minimizing its negative environmental effects from O&G E&P.

Funding for less than the requested amount may also delay the project by adding to the amount of additional equity required to complete the project. Hydroil has preliminary approval from Byline Bank to secure the Other Project Sponsor's Share. Through USDA and SBA guaranteed loans, Byline will fund 60% of the project cost (50% USDA and 10% SBA). A grant from the Authority for the requested amount of $2,500,000 would provide the balance of the equity needed to close the Byline Bank loan and begin construction.

CONFIDENTIAL INFORMATION

A person or entity may file a request with the Commission to have material(s) designated as confidential. By law, the request is confidential. The request for confidentiality should be strictly limited to information that meets the criteria to be identified as trade secrets or commercial, financial, or proprietary information. The Commission shall examine the request and determine whether the information meets the criteria. Until such time as the Commission meets and reviews the request for confidentiality, the portions of the application for which confidentiality is being requested shall be held, on a provisional basis, as confidential.

If the confidentiality request is denied, the Commission shall notify the requester and the requester may ask for the return of the information and the request within 10 days of the notice. If no return is sought, the information and request are public record.

Note: Information wished to be considered as confidential should be placed in separate appendices along with the confidentiality request. The appendices must be clearly labeled as confidential. If you plan to request confidentiality for **reports** if the proposal is successful, a request must still be provided.

Confidential information is contained in a separate attachment – Appendices 1 through 11

PATENTS/RIGHTS TO TECHNICAL DATA

Any patents or rights that the applicant wishes to reserve must be identified in the application. If this does not apply to your proposal, please note that below.

None.

STATE PROGRAMS AND INCENTIVES

Any programs or incentives from the State that the applicant has participated in within the last five years should be listed below, along with the timeframe and value.

None.

Revised 10.20.2

Industrial Commission

Tax Liability Statement

Applicant:

Hydroil Solutions LLC

Application Title:

Hydroil Solutions McKenzie #1

Program:

- ☐ Lignite Research, Development and Marketing Program
- ☐ Renewable Energy Program
- ☐ Oil & Gas Research Program
- ☑ Clean Sustainable Energy Authority

Certification:

I hereby certify that the applicant listed above does not have any outstanding tax liability owed to the State of North Dakota or any of its political subdivisions.

Scott Mead

Signature

Executive VP

Title

9 February 2022

Date

ABSTRACT

Background:

Hydroil Solutions LLC (Hydroil) is a North Dakota company looking to provide a service to the oil and gas industry currently absent in the Bakken oilfield. Using slurry fracture injection (SFI) technology, Hydroil Solutions will offer an in-state, environmentally responsible option for permanent disposal of oilfield waste. Historically, oil and gas (O&G) exploration and production (E&P) have taken the spotlight in energy production in North Dakota with very little attention given to downstream processes such as oilfield waste disposal. The maturity of the Bakken shale oil play over the last 10 years has revealed gaps in the industry which need to be filled to ensure North Dakota's position as a clean energy leader.

Although still producing over 1,000,000 barrels of oil every day, North Dakota has neither the regulatory nor physical means to handle all the waste associated with its production level, leaving the industry vulnerable to decisions by forces outside the state that can have a tremendous impact on in-state oil production. Furthermore, regardless of its ultimate destination, the waste is buried in surface landfills which pose numerous short and long-term environmental challenges. Successful completion of this project will demonstrate that SFI technology solves many of the logistic, economic, and environmental issues facing the North Dakota O&G industry waste disposal process.

Hydroil Solutions pioneered SFI technology in North Dakota, having introduced SFI disposal geomechanics and procedures to the NDIC in 2017. Unsatisfactory results from previously failed waste injection projects in the state made the task of demonstrating the benefits of the technology very difficult. Our successful appeal required multiple joint meetings with the NDIC, Hydroil, and other various industry experts to prove the efficacy of the technology. In June 2019 Hydroil Solutions became the first company in North Dakota to obtain a set of approved orders (petroleum waste processing plant, injection well, and bonding) to build and operate a SFI facility, the economic climate over the past two years, coupled with the SFI process being new to the industry in the area, made it difficult to obtain funding for the project and our orders expired.

For this project, we have newly approved orders from the NDIC as well as a long-term lease for 10 acres of the Anytime Hydroexcavation property, located just off US highway 85 in McKenzie County. Our goal is complete fundraising by June 2022 to purchase equipment and begin construction this summer for a February 2023 opening and commencement of operations. Geomechanical data suggests the target disposal area has three separate zones, each with a five to seven-year capacity giving the project an anticipated 15 to 20-year operational life. Based on knowledge of our prospective customers' current volumes and cost structures, we are confident the project will have a strong positive cash flow within the first year of operations.

Hydroil is led by Jake Anderson, CEO, who has 15 years of upper-level business management with a top 10 Fortune 500 company and over a decade of real estate investment experience; Gary Woolsey, COO, who has over 35 years of experience designing and executing SFI waste disposal facilities; and Scott Mead, EVP, who brings 10 years of commercial finance experience. Hydroil has also contracted with a select group of specialized industry experts to ensure the project's environmental and technical integrity (see Participant section below).