

#### UNITED STATES NUCLEAR REGULATORY COMMISSION REGION IV 1600 EAST LAMAR BOULEVARD ARLINGTON, TEXAS 76011-4511

June 13, 2024

Jennifer McLain, Director Office of Ground Water and Drinking Water U.S. Environmental Protection Agency 1200 Pennsylvania Ave Washington, D.C. 20460

### SUBJECT: REQUEST FOR REVIEW AND COMMENT ON DRAFT ENVIRONMENTAL ASSESSMENT AFFECTING THE U.S. ENVIRONMENTAL PROTECTION AGENCY'S UNDERGROUND INJECTION CONTROL PROGRAM

Dear Jennifer McLain:

The purpose of this letter is to request the U.S. Environmental Protection Agency (EPA) review and comment on a proposed licensing action by the U.S. Nuclear Regulatory Commission (NRC) associated with the EPA's Underground Injection Control (UIC) program. Following a previous informal request, the EPA and the NRC agreed that a more formal process for review and comment be initiated to ensure that any comments identified by the EPA would be appropriately addressed (letter dated July 9, 2004, [Agency Documents Access and Management System (ADAMS) accession number ML041910370]).

An NRC licensee, ProTechnics Division of Core Laboratories, LP (ProTechnics) requested an amendment to its NRC license to allow an additional method of disposal for well-logging sandouts and well returns (hereafter referred to as well returns) containing residual quantities of radioactive tracer material. The NRC regulations in 10 CFR 20.2001 lists approved methods of disposal for NRC licensed radioactive materials, and 10 CFR 20.2002 allows licensees to propose additional methods of disposal. The licensee is currently approved under 20.2002 for disposal of well returns containing tracer material in Class II wells and has requested to use Class I wells to dispose of the well returns.

Enclosure 1 is the draft environmental assessment (EA) for this amendment. The NRC believes that the environmental impact of this proposed action is bounded by the previous evaluation of disposal in Class II wells by virtue of the EPA's more stringent requirements for Class I wells compared to the requirements for Class II wells, including design, construction, location, as well as testing and monitoring of these wells. The NRC is seeking EPA review and input prior to making a decision on the licensee's request and would establish the same license conditions to ensure safe disposal. The draft license conditions, provided as Enclosure 2, were used as the basis for the EA.

It is important to note that this licensee does not own or operate any wells. The proposed licensing action would only create a new method acceptable to the NRC to safely and securely dispose of specific NRC licensed radioactive material to permanently remove this material from

its inventory. The licensee is required to ensure that any specific well to be used has been permitted by the State, Territory or Federal entity having jurisdiction over the well to accept the material, thus ensuring that the well meets UIC requirements prior to injection.

ProTechnics will be authorized to use only well-logging beads patented as a Zero-Wash product. Zero-Wash is a well-logging bead that is insoluble (i.e., the radioactivity will not migrate or leach into groundwater). Zero-Wash test results are provided in Enclosure 3. The radioactive isotopes are restricted to those with short half-lives (120 days or less). These waste materials are not classified as hazardous or mixed waste by EPA regulations. Additionally, ProTechnics provided a copy of an EPA permit for two Class I wells (Permit Number AK11017-A) located on the North Slope of Alaska, which is attached to Enclosure 4.

This request has been coordinated with William Bates, Chief of the EPA's UIC Branch. If you have any questions, please contact Neil O'Keefe of my staff at 817-200-1156.

In accordance with Title 10 of the Code of Federal Regulations (10 CFR) 2.390 of the NRC's "Agency Rules of Practice," a copy of this letter and its enclosures will be available electronically for public inspection in the NRC Public Document Room or from the NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <u>https://www.nrc.gov/reading-rm/adams.html</u>.

Sincerely,

WINRS

Signed by Monninger, John on 06/13/24

John D. Monninger Regional Administrator

Docket No. 030-30429 Mail Control No. 638290

Enclosures:

- 1. Draft Environmental Assessment
- 2. Draft License Condition
- 3. Zero Wash Test Results
- 4. ProTechnics License Amendment Request

REQUEST FOR REVIEW AND COMMENT ON DRAFT ENVIRONMENTAL ASSESSMENT AFFECTING THE U.S. ENVIRONMENTAL PROTECTION AGENCY'S UNDERGROUND INJECTION CONTROL PROGRAM DATED – JUNE 13, 2024

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SUNSI Review By: NFO	ADAMS: X Yes □ No	□ Sensitive X Non-Sensitive	<ul> <li>Non-Publicly Available</li> <li>X Publicly Available</li> </ul>	ble Keyword NRC-002
OFFICE	MLB:DRSS	MLB:DRSS	D:DRSS	RA
NAME	RTorres	NO'Keefe	TBloomer	JMonninger
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DATE	5/20/2024	5/22/2024	5/24/2024	6/13/2024

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#### U.S. NUCLEAR REGULATORY COMMISSION DOCKET NO. 030-30429 LICENSE NO. 42-26928-01 CONTROL NO. 638290

### FINAL DRAFT FOR COMMENT

#### Environmental Assessment and Finding of No Significant Impact Related to Materials License No. 42-26928-01, ProTechnics Division of Core Laboratories LP, of Houston, Texas, License Amendment Request for Approval of an Alternate Disposal Method

The U.S. Nuclear Regulatory Commission (NRC) is reviewing a license amendment for an alternate waste disposal method for well logging sand-outs or well logging returns containing residual licensed radioactive material used under NRC Byproduct Materials License No. 42-26928-01. These sand-outs or well returns containing NRC-licensed material in tracer form will be injected into U.S. Environmental Protection Agency (EPA) or State approved Class I disposal wells. The radioactive concentrations of the material to be injected into Class I disposal wells will be less than the limits considered to be "Radioactive Waste" as defined in EPA regulation 40 CFR 144.3 and are thus considered non-hazardous oil and gas waste. The NRC staff has prepared an environmental assessment in support of this licensing action. The NRC regulates only the licensed radioactive material that, in this case, is expected to be mixed with oil and gas waste incident to petroleum production. Therefore, the license amendment, if approved, would allow disposal in a Class I well contingent upon obtaining other permitting and/or approvals needed for the disposal of all constituents of the waste in any specific Class I well.

**SUMMARY**: The NRC is considering a license amendment for approval of an alternate disposal method, pursuant to 10 CFR 20.2002, for residual radioactive material possessed under NRC Byproduct Materials License No. 42-26928-01. ProTechnics Division of Core Laboratories LP (ProTechnics) seeks NRC approval to allow an additional disposal method to inject well logging sand-outs or well logging returns containing residual radioactive tracer material (non-hazardous oil and gas waste) into Class I disposal wells. These Class I disposal wells would have been approved under permits to accept hazardous or non-hazardous waste by the EPA or State agencies. Approval of this license amendment request will be based upon the NRC's review and evaluation of the merits of the licensee's proposal, current alternatives, and radioactive waste disposal regulations in 10 CFR Part 20. The NRC staff has evaluated the licensee's proposal and has developed an environmental assessment in accordance with the requirements of 10 CFR Part 51. This assessment considered a prior NRC environmental assessment for disposal of the same type and concentration limits of waste in Class II disposal wells, which have less stringent design criteria (Federal Register Notice 68 FR 61472).

### 1.0 Introduction

ProTechnics is based in Houston, Texas, and conducts well logging operations with radioactive materials in oil and natural gas fields worldwide. ProTechnics is also licensed to conduct tracer operations where the NRC has jurisdiction and in Agreement States including Alaska, Wyoming, Louisiana, Texas, Colorado, Oklahoma, Kansas, Pennsylvania, and New Mexico. ProTechnics performs over 1,500 well logging fracturing jobs per year in the United States using various radioactive tracer materials with half-lives of less than 120 days. ProTechnics' procedures

require that 1,000 pounds of sand be mixed with every 0.4 millicuries of tracer material prior to injection into an oil or gas well during fracking operations resulting in a concentration of 881.85 picocuries per gram of injected licensed material.

ProTechnics is authorized to use only tracer beads patented as a Zero-Wash product. Zero-Wash beads are insoluble (i.e., the radioactivity will not migrate or leach into groundwater). These waste materials are not classified as hazardous or mixed waste by the EPA regulations based on the concentration limits proposed for the license amendment. The purpose of the tracer material is to enhance the performance of the oil well fracturing procedures. Using the information provided by the well logging instruments measuring low-level radiation from tracer material and naturally occurring sources, the well operator can maximize the production from the well. Fracturing jobs can result in some backflow of injected tracer material to the surface. This phenomenon is called sand-outs or well logging returns. The amount of the well logging returns can range from a few gallons (20 pounds) to about a tanker truck load (50,000 pounds). The concentration of radioactive material in the well logging returns is low because the tracer material is mixed into fracturing sand prior to being injected into the well.

The NRC regulations in 10 CFR 20.2002 contain the approved methods of disposal and transfer of NRC-licensed radioactive material. Licensees may propose alternative methods per 10 CFR 20.2002. Currently, ProTechnics is authorized for the following disposal methods of residual licensed tracer material contained in sand-outs or well returns meeting the requirements and controls specified in its license:

- Decay-in-storage until there is no measurable radiation above background, then unrestricted disposal in accordance with requirements for the other constituents
- Burial in shallow pits near the well site if approved by the well permitting authority (equivalent to decay-in-storage)
- Shipped to an approved waste site for burial
- Disposal in Class II disposal wells if approved by the well permitting authority

On December 13, 2023, ProTechnics requested a license amendment to allow well logging sand-outs or well logging returns containing residual licensed material to be disposed of by injection into Class I disposal wells. All the sand-outs or well returns containing radioactive tracer materials would be recovered and subsequently contained in Class I disposal wells that meet the State's and EPA's regulations. ProTechnics proposes to dispose of material into Class I wells with radioactivity concentrations that are less than 30 percent of the levels in 10 CFR Part 20, Appendix B, Table 2, Column 2. These radioactive concentrations are below the levels considered to be "Radioactive Waste" as defined in the EPA regulation 40 CFR 144.3. Class I disposal wells are described in EPA regulations under 40 CFR 144.6 as: (1) Wells used by generators of hazardous waste or owners or operators of hazardous waste management facilities to inject hazardous waste beneath the lowermost formation containing, within one quarter mile of the well bore, an underground source of drinking water, (2) Other industrial and municipal disposal wells which inject fluids beneath the lowermost formation containing, within one quarter mile of the well bore, an underground source of drinking water, (3) Radioactive waste disposal wells which inject fluids below the lowermost formation containing an underground source of drinking water within one quarter mile of the well bore. Some of the EPA requirements imposed on Class I disposal well operators are found in 40 CFR 144.28 and address compliance with the Safe Drinking Water Act, 24-hour reporting of noncompliance, well

plugging and abandonment planning, financial assurance, well casing and cementing, operating, and monitoring requirements, records retention, and change of ownership and operational control.

### 2.0 Proposed Action

The proposed action is to issue a license amendment to Byproduct Materials License No. 42-26928-01 for approval of an alternate waste disposal method for well logging sand-outs or well logging returns containing residual radioactive tracer material produced as a result of fracturing sand well logging operations. The licensee seeks approval to allow fracturing sandouts or well returns that do not meet EPA's definition of "Radioactive Waste" in 40 CFR 144.3 and are not considered hazardous waste to be disposed of by injecting into Class I disposal wells that have been approved under permits to accept this type of waste by the EPA, State or Territory agencies having jurisdiction for the well. This method of disposal would be used as an alternative to existing methods of disposal authorized by the NRC in the current license.

## 3.0 Purpose and Need for the Proposed Action

The purpose of the proposed action is to allow ProTechnics an additional disposal alternative because some locations where the tracer operations are conducted do not allow shallow pits to be used for well waste disposals in locations where there are no Class II disposal wells nearby to allow disposal of well sand-outs or well returns. This proposed action would allow the continued use of tracer materials used to enhance oil production in those areas and allow the efficient production of oil and gas, thereby reducing the cost of recovery to the well operators. The NRC is fulfilling its responsibility under the Atomic Energy Act to make a decision for the proposed action that ensures adequate protection of the public health and safety and the environment.

## 4.0 Alternative to the Proposed Action

The only alternative considered to the proposed action of allowing the alternative disposal in Class I disposal wells is no-action. The no-action alternative would be to limit the licensee to maintain and dispose of waste as discussed above as authorized in the current NRC license.

## 5.0 The Affected Environment and Environmental Impacts

The NRC staff has reviewed the proposed action and the alternatives and examined their impacts.

## 5.1 Proposed Action

The proposed action would authorize the use of EPA or State approved Class I disposal wells already permitted and in operation where materials are injected below the water table. Class I wells allow injection far below the lowermost underground source of drinking water (USDW), with injection zones that typically range from 1,700 feet to more than 10,000 feet in depth. The injection zone is below and separated from USDWs by an impermeable "cap" rock called the confining layer. The confining layer may be associated with additional layers of permeable and impermeable rock and sediment to separate the injection zone from USDWs. Owners and operators of Class I wells must meet specific requirements to obtain an EPA or State permit. These requirements address the siting, construction, operation, monitoring and testing, reporting and record keeping, and closure of Class I wells. Because this disposal method would

use existing approved structures, there would be no significant impact to historic and cultural resources, ecological resources, land use or visual resources. In addition, due to the design of the patented Zero-Wash product (no wash off of radioactive material), the crush strength of the Zero-Wash product (i.e., greater than 10,000 psi), and the design of these Class I wells, the well logging sand-outs and well logging returns would not contaminate groundwater and would not migrate from the formation where injected. Because the proposed action will only allow the use of pre-existing Class I disposal wells, there would be no increased air emissions or noise, and there would be no significant impacts on local or regional business conditions, populations, or demographics. During the permitting process for Class I disposal wells, potential socioeconomic and environmental impacts are investigated as part of the review and permitting process. In general, Class I disposal wells are not located in populated or business areas. Construction, permitting, operating, and monitoring requirements are more stringent for Class I hazardous waste disposal wells than for other Class I injection well categories. Approximately 800 operational Class I wells exist in the United States (about 17 percent of Class I wells are hazardous waste disposal wells while 53 percent of Class I wells provide for injection of nonhazardous industrial waste).

If approved, ProTechnics' 10 CFR 20.2002 alternate waste disposal method authorization for use of Class I disposal wells would contain the following provisions: (1) a requirement that the radioactive concentration of waste must be less than 1,000 picocuries/gram; (2) the half-life of the radioactive material being disposed must be less than 120 days and include only the following tracers: scandium-46, bromine-82, zirconium-95, antimony-124, iodine-131, iridium-192, or gold-198) in the form of the patented "Zero-Wash" product in sand-outs and well returns; (3) the Class I disposal well must be permitted by the State, Territory, or Federal jurisdiction to accept non-hazardous oil and gas waste that will be generated in part by ProTechnics from well logging operations; and (4) ProTechnics would maintain a written agreement with the Class I disposal well owner or operator to control access to the well until the radioactivity has decayed to unrestricted release levels.

Increased radiation exposure to the public from transporting waste containing residual tracer material to the disposal site would be negligible. There are two routes of exposure possible, external and internal. The internal exposure would be from ingestion of the material. The particle size is such that it is not respirable. The material is not soluble in the body thereby reducing the resident time in the body. At the concentrations expected, an individual would need to ingest 200 pounds of the material to receive 1/10 of the regulatory annual limit of intake specified in 10 CFR Part 20, Appendix B. The maximum radiation exposure level, at 1 foot from a vehicle transporting this waste, would be on the order of 0.1 millirem per hour. The radiation level in the cab of the transport vehicle would be on the order of 0.004 millirem. Due to its low radiation level and radioactive concentration, an accident causing the release of the waste returns from the transport vehicle would result in minimal exposure to workers or members of the public during the subsequent cleanup efforts.

Tracer injection operations at the disposal wells are automated to minimize the time required for personnel to be in the immediate area of the injected material. Assuming an injection time of 4 hours per disposal, and an individual within 1 foot of the radioactive material during the injection operation, the total exposure per year would not be expected to exceed 4 millirem from this operation. The disposal site would be surveyed to meet the NRC criteria for unrestricted use in accordance with 10 CFR Part 20 after the sand-out material is injected into a Class I disposal well.

Because of the short-lived radionuclides that ProTechnics will use in well logging tracer studies, the residual radioactive material concentrations that will be shipped will be below the 1,000 picocuries/gram limit that will be established in condition listed in the NRC license. There would be no increase in the number of transport vehicles on the highways due to this proposed aspect of well logging operations. The current practice of transporting well logging returns to a decay-in-storage facility or shallow disposal pit or Class II disposal well requires that at least one transport vehicle be used. Procedures would be in place to handle any emergency arising from any incident involving the handling or transportation of this material.

Overall, the environmental impacts resulting from the release of this material into Class I disposal wells are expected to be insignificant. The NRC staff concluded that the EPA's and State's requirements for permitting the operation of Class I disposal wells were stringent and thoroughly covered any radiological or non-radiological environmental concern. There are no additional activities which would result in cumulative impacts to the environment.

### 5.2 Alternative

When compared to the Class I disposal well proposal, the no-action alternative would result in increased risk of exposing occupational workers and the members of the public to radioactive material. ProTechnics' use of shallow earthen pits and decay-in-storage facilities requires additional handling of the radioactive material and increases the potential for individuals to access radioactive material. ProTechnics would continue use of shallow earthen pits, transporting the sand-out material to the new pits, covering the disposal pits with at least 2 feet of soil, and marking the disposal sites in order to control access to the public. Additionally, ProTechnics would continue to maintain sand-out material in leased decay-in-storage facilities. In addition to radiological impacts, non-radiological impacts to land use, soils, visual resources, transportation, water resources, noise, air quality, cultural resources, threatened and endangered species could occur because ProTechnics would continue decay-in-storage before unrestricted disposal or burial in shallow earth pits.

### 6.0 Agencies and Persons Consulted

The NRC staff has prepared this environmental assessment with input from the Alaska Oil & Gas Conservation Commission and the Texas Department of State Health Services regarding permitting of Class I disposal wells and Zero-Wash product. This environmental assessment was provided to the EPA Division of Underground Injection Control for review and comment.

Because the proposed action is entirely within existing Class I wells, the NRC has concluded that there is no potential to affect threatened or endangered species or historic resources. Therefore, consultation with the U.S. Fish & Wildlife Service and State Historic Preservation Officers is not necessary.

The NRC staff provided a draft of this environmental assessment to the following states for review and comment: Alaska, Texas, Colorado, Louisiana, New Mexico, Oklahoma, Kansas, Pennsylvania, and Wyoming. This environmental assessment has been revised to reflect the states input where appropriate. NOTE: These consultations will take place prior to issuance of this EA.

### 7.0 Conclusions

The NRC staff concluded that the proposed action complies with 10 CFR Part 20 and 10 CFR Part 30. Pursuant to 10 CFR Part 51, the NRC staff has prepared this environmental assessment in support of the proposed license amendment for approval to allow fracturing sand well returns to be injected in Class I disposal wells that have been approved under permits to accept hazardous waste by the EPA or State agencies. The NRC has concluded that the environmental impact from the proposed action would not have any significant effect on the quality of the human environment; therefore, an environmental impact statement for the proposed action is not warranted.

### 8.0 List of Preparers

This environmental assessment was prepared by Roberto J. Torres, Senior Health Physicist, Materials Licensing Branch, Division of Radiological Safety and Security, Region IV, and reviewed by Neil O'Keefe, Chief, Materials Licensing Branch, Division of Radiological Safety and Security. Comments from the Division of Decommissioning, Uranium Recovery, and Waste Program, and the Division of Rulemaking, Environmental, and Financial Support, in the NRC's Office of Nuclear Materials Safety and Safeguards were incorporated.

### 9.0 List of References

NRC, "Radiological Criteria for License Termination," 10 CFR Part 20, Subpart E (62 FR 39088, July 21, 1997, as amended at 66 FR 55789, November 2, 2001; 72 FR 49485, August 28, 2007)

NRC, "Waste Disposal," 10 CFR Part 20, Subpart K (56 FR 23403, May 21, 1991, as amended at 66 FR 55789, November 2, 2001; 72 FR 55922, October 1, 2007)

NRC, "Consolidated NMSS Decommissioning Guidance, Decommissioning Process for Materials Licensees" NUREG-1757, Volume 1, Revision 2, September 2006.

NRC, Draft, "Environmental Review Guidance for Licensing Actions Associated with NMSS Programs," NUREG-1748, August 2003.

Federal Register Notice FR 68 61472, "Finding of No Significant Impact Related to Materials License No. 42–26928–01, Core Laboratories, Inc. (dba ProTechnics) of Houston, TX, License Amendment Request for Approval of an Alternate Disposal Method", October 28, 2003.

Core Laboratories LP dba ProTechnics Division of Core Laboratories LP, Texas Department of State Health Services License No. L03835, Amendment No. 67, expiration date August 31, 2025.

#### Draft License Condition for Disposal in Class I Wells

Notwithstanding the requirements of 10 CFR 20.2007, pursuant to 10 CFR 20.2002, and in accordance with the statements, representations, and procedures contained in correspondence dated December 13, 2023 (ML23352A126) and the Nuclear Regulatory Commission Environmental Assessment dated XXX (MLXXX), the licensee may release well-logging sand-outs and well returns, containing residual radioactive materials, into Class I Disposals Wells provided that:

- A. The total radioactive concentration of all isotopes is 1,000 picocuries/gram or less, and the physical half-life of the radioactive material is 120 days or less.
- B. The residual radioactive tracer material (scandium-46, bromine-82, zirconium-95, antimony-124, iodine-131, iridium-192, or gold-198) being disposed of will be in the form of the patented "Zero-Wash" product in sand-outs or well returns.
- C. The licensee is required to use well-logging beads known as "Zero-Wash", which are insoluble where the radioactivity will not migrate or leach into groundwater, as described in letter dated July 11, 1991 (ML033040193).
- D. The well has been permitted by the State, Territory, or Federal jurisdiction to accept nonhazardous oil and gas waste regardless of whether the job site is in an area where the U.S. Nuclear Regulatory Commission maintains jurisdiction for regulating licensed material, including areas of exclusive Federal jurisdiction within Agreement States.
- E. The licensee is required to maintain access control over the Class I Disposal Well until the radioactivity has decayed to unrestricted release levels.
- F. The licensee maintains an agreement with the owner or operator to control access to the Class I Disposal Well until the radioactivity has decayed to unrestricted release levels.
- G. The licensee is required to maintain records of disposal in accordance with 10 CFR 20.2108.

"Larry Stephenson" <lstephenson@corelab.com></lstephenson@corelab.com>
<lcc1@nrc.gov></lcc1@nrc.gov>
4/23/03 2:57PM
PROTECHNICS ENVIRONMENTAL ASSESSMENT

Louis:

Attached is the information you requested. If it is not complete or clear or if you need additional information, please contact me. I will be in the office all week.

Thanks <<ENVIRONMENTAL ASSESSMENT.doc>> <<ZEROWASH CAPABILITIES1.doc>> <<ZW1.DOC>>

Larry J. Stephenson, P.E.; C.P.S.M. Director of Environmental Compliance ProTechnics Environmental A Division of Core Labroatories, LP 6316 Windfren Houston, Texas 77040 Ph: 713-328-2356 Fax: 713-328-2163



#### TEXAS ENGINEERING EXPERIMENT STA' 6316 Windfren Houston, Texas 77040 USA

**TEXAS A&M UNIVERSITY** 

COLLEGE STATION TEXAS 77843-3575

# 11 July 1991

ProTechnics International 14760 Memorial Drive, Suite 206 Houston, Texas 77079

We have completed the wash test on your patent pending radioactive carrier PTI-ZW under the testing criteria that you included in your guidelines and our input that we discussed. The test was performed and completed on June 19, 1991. Listed below are the test results.

Sincerely,

m ZZmb

RECEIVED<sup>13</sup> JUL 1991

ProTechnics

Tel: 713-328-2320 Fax: 713-328-2163

www.protechnics.com

John L. Krohn Assistant Director

JLK/ym

## Radioactive Wash Test Results (PTI-ZW)

Washoff Washoff Temp 80° F 180° F <u>KCL Water</u> 12/1000 of 1% 40/1000 of 1% <u>15% HCL</u> 17/1000 of 1 % 41/1000 of 1 % Note : These washoff amounts could be considered negligible in view of the probability of filter washby of production fines.

RESEARCH AND DEVELOPMENT FOR MANKIND



ProTechnics patented ZERO WASH<sup>®</sup> radioactive material is manufactured by encapsulating Iridium, Scandium or Antimony inside a ceramic bead. The non-radioactive product is shipped to one of three nuclear reactors for irradiation. This patented process prevents the encapsulated radioactive material from contaminating materials it comes in contact with. Even under extreme conditions (acid, temperature, pressure, etc.), the radioactive material stays inside the ceramic bead. Third party testing (copy attached) and nine years of actual use has proved the durability of this patented product. The manufacturer of our patented Zero Wash<sup>®</sup> bead is under strict quality control procedures. A representative of our company is present during the entire manufacturing process. The manufacture of the bead involves the mixing of the stable isotope with a ceramic material. The chemical form of the stable isotopes (oxides and/or metals) used to make the beads is not soluble in water. The product is baked fusing the components together. The crush strength of the final product is greater than 10,000 psi. The final product is shipped to one of three reactors for activation and then returned to our laboratory for dispensing.

ProTechnics patented ZERO WASH<sup>®</sup> radioactive material is manufactured by encapsulating Iridium, Scandium or Antimony inside a ceramic bead. The non-radioactive product is shipped to one of three nuclear reactors for irradiation. This patented process prevents the encapsulated radioactive material from contaminating materials it comes in contact with. Even under extreme conditions (acid, temperature, pressure, etc.), the radioactive material stays inside the ceramic bead. Third party testing (copy attached) and nine years of actual use has proved the durability of this patented product. The manufacturer of our patented Zero Wash<sup>®</sup> bead is under strict quality control procedures. A representative of our company is present during the entire manufacturing process. The manufacture of the bead involves the mixing of the stable isotope with a ceramic material. The chemical form of the stable isotopes (oxides and/or metals) used to make the beads is not soluble in water. The product is baked fusing the components together. The crush strength of the final product is greater than 10,000 psi. The final product is shipped to one of three reactors for activation and then returned to our laboratory for dispensing.

### ENVIRONMENTAL RELEASES

Due to the design of the patented Zero Wash<sup>®</sup> Product (no possibility of any "wash off" of radioactive material), the nature of the environment (topographical, geological, meteorological, and hydrological) adjacent to the well sites are of little consequence. The Zero Wash Product cannot migrate through the soil and the radioactivity cannot contaminate the ground water. The half-life of the radioisotopes is less than 100 days.

#### THE PROPOSED ACTION

ProTechnics proposes to dispose of well returns, containing radioactive tracer material, in a Class II disposal well. These wells have been approved for the disposal of non-hazardous oil field waste materials including naturally occurring radioactive material (NORM). This method of disposal will be utilized when existing methods of disposal cannot be used.

ProTechnics injects three radioactive materials during it's tracer operations i.e., Iridium 192, Scandium 46, and Antimony 124. The longest half-life of these materials is 84 days. ProTechnics patented ZeroWash® product will not migrate from the disposal site nor will it contaminate ground fluids (see attached documentation). ProTechnics' materials are not classified as hazardous waste or mixed waste by the U.S. EPA. The purpose of the tracer material is to track the down hole performance of the well fracturing procedure. This tracer technology is critical in well completions. Using the information provided by the tracer material, the well operator can maximize the production from the well.

The concentration of radioactive material in the injected frac material and therefore possibly in the well returns is on the order of 1,000 pCi/gm. This activity is below that which the U.S. D.O.T. regulates (2,000 pCi/gm).

ProTechnics conducts tracer operations world wide and has radioactive material licenses issued by the Nuclear Regulatory Commission, Louisiana, Texas, Colorado, Utah, California, Oklahoma, and New Mexico.

#### PURPOSE OF THE PROPOSED ACTION

The need for this requested activity is due to the fact that some locations where the tracer operation is conducted do not allow reserve pits to be used to hold well returns. This exemption is necessary to allow the continued use of tracer materials in those areas and allow the efficient production of oil and gas from the formation thereby reducing the cost of recovery to the well operator. Without this technology, the well operator has no way of determining why the well is not producing as planned and will have no information to allow the successful re-completion of this well to maximize production.

#### ALTERNATES TO THE PROPOSED ACTION

The possible alternative to the proposed action is either to hold for decay or ship to an approved waste site for burial. These two methods would have a greater impact on exposure to the occupational exposed workers and the general public than in a disposal well due to the time required for transportation to a burial disposal site and the time required for the material to decay if held in storage. In addition, the cost of storage tanks and the cost for burial at an approved disposal site would be cost prohibitive.

#### ENVIRONMENTAL IMPACTS

1. The addition of the radioactive tracer material into a Class II disposal well (containing nonhazardous oil and gas waste and naturally occurring radioactive material) will not add to the environmental impact from the operation of the disposal well. The disposal wells are located in remote unpopulated areas. In addition, the inherent properties of ProTechnics patented product will not allow it to migrate from the

formation where it was injected and will decay in-situ in a short time period and will not cause any environmental impact or increased exposure to the general public. The depth of the disposal wells range from 5,000 to 15,000 feet well below any usable quality drinking water.

2. In most cases the current method of handling the return fluids will be used. It is only in a few cases where this alternate method of disposal is necessary. ProTechnics conducts approximately 3,000 tracer operations per year in the U.S. Of these, 100 might require alternate disposal methods. Of these 100, 10 would be in NRC controlled areas. The volume of material would range from one 1,000 lbs of well returns to one frac tank (approximately 50,000 lbs of well materials containing tracer material at a concentration of 1000 pCi/gm). There would be no increase in the number of transport vehicles on the highways since the well return materials are transported to a disposal site even when they do not contain radioactive material. In addition, radioactive (material at these concentrations) are not regulated by the U.S. Department of Transportation. Procedures are currently in place to handle any emergency situation arising from any incident involving the handling or transportation of this material.

3. Increased exposure to the general public from the transportation of the material to the disposal site would be negligible. There are two routes of exposure possible, i.e. external and internal. The internal exposure would be from ingestion of the material. The particle size is such that it is not respirable. The material is not soluble in the body and thereby reducing the resident time in the body. At the concentrations expected, an individual would have to ingest 200 lbs. of the material to receive 1/10 of the regulatory annual limit of intake. The maximum radiation exposure level, at a distance of one foot from the vehicle, would be on the order of 0.1 mR/hr. The radiation level in the cab of the transport vehicle would be on the order of 0.004 mR/hr. Using an average transport time of one hour and assuming the same driver was used for all of the expected disposals (10 per year), the exposure to the driver of the vehicle would be 0.04 mR. Exposure due to a vehicle accident and the release of the material in the trailer would be less than the exposures referenced above.

4. The injection activity is automated to minimize the time required for personnel to be in the immediate area of the injected material. Assuming an injection time of 4 hours per disposal, and an individual was within one foot of the radioactive material during the injection operation, the total exposure per year would not exceed 4mr from this operation. This also assumes the same individual performed all 10 disposal procedures.

5. Environmental impacts as referenced in 3.2.6.

Degradation of water quality or water supply; Materials are injected below the water table. In addition, ProTechnics materials will not contaminate ground water and will not migrate from the formation where injected.

Habitat destruction; The Class II well is already in place. No additional equipment or construction in the area is required for this operation.

Increased air emissions; No increased air emissions. Well returns will be disposed in this well whether it contains radioactive material or not.

Increased noise; See statement above.

Damage or reduced access to cultural resources; See statement above.

Changes to local or regional business conditions; See statement above.

Increased competion for available resources; See statement above.

Additional population or changing demographics; See statement above.

6. Adverse Impacts

Radiological impacts have been addressed above. The Class II wells are already in place and operational. There will be no direct or indirect impacts from the additional disposal of well returns containing radioactive tracer materials in these wells.

7. Evaluation of Significance

Class II disposal wells are already permitted and in operation. They are located in remote areas away from historic or cultural resources and have no impact on these areas. The additional disposal of well returns containing radioactive material will not increase the environmental implications of the well since well returns are disposed here even when they do not contain radioactive material. The items referenced in 3.2.6.3 have been addressed in the review process for permitting a Class II disposal well.



ProTechnics 6510 W Sam Houston PKWY N Houston, Texas 77041 USA Tel: 713.328.2320 www.corelab.com

Mail Control Number: 638290 Docket Number : 3030429 License Number : 42-26928-01 Licensee Name : ProTechnics Division of Core Laboratories LP ML23352A126

December 13, 2023

U.S. Nuclear Regulatory Commission Region IV Material Licensing Branch 1600 East Lamar Blvd. Arlington, TX 76011-4511

Subject: License Amendment Request for ProTechnics Division of Core Laboratories LP NRC License # 42-26928-01

Dear Mr. O'Keefe,

ProTechnics Division of Core Laboratories LP (ProTechnics) is requesting an amendment to its radioactive material license # 42-26928-01 for an additional disposal options in accordance with 10 CFR 20.2002. Currently, we are licensed to dispose of well-logging sand-outs and well returns (well returns) containing residual amounts of our Zero-Wash tracer by injection into Class II disposal Wells as long as certain conditions are met.

Similar to Class II well disposal, we are requesting an amendment to our license to allow well returns containing our Zero-Wash tracer to be disposed of in Class I disposal wells. Class I wells are used to inject hazardous and non-hazardous wastes into deep, confined rock formations and are typically drilled thousands of feet below the lowermost underground source of drinking water. Along with the inherent properties of the Zero-Wash beads being insoluble and non-migratory, they have a relatively short half-life resulting in a low radiological impact. We would be sure to maintain the same standards for material to be sent to Class I wells as those currently required for Class II disposal mentioned above and in our license.

ProTechnics has broached the subject of using Class I wells for disposal with EPA region 10 and they have verbally stated that radiotracer in such low concentrations would be allowed to be sent to Class I wells. Additionally, the EPA issued a permit to one of the well owner/operators to allow for disposal of radioactive tracer beads in the Class I well. That permit is attached for reference. With that in mind, we are requesting a specific license condition allowing the Class I wells be added as an approved disposal method of traced well returns for license #42-26928-01.

Should you require additional information, please let us know.

Sincerely,

Jeremiah Diaz, RSO Director – Health, Safety, & Environmental ProTechnics, a Division of Core Laboratories

From:	Pete Hernandez		
To:	R4 Licensing Action Submittals		
Cc:	Jeremiah Diaz		
Subject:	[External_Sender] LAR for ProTechnics License Number 42-26928-01		
Date:	Thursday, December 14, 2023 7:30:27 AM		
Attachments:	image001.png		
	image002.png		
	image003.png		
	image004.png		
	LAR add-Class I well 12-13-2023.pdf		
	Alaska-Class-I-landfill-permit-example.pdf		

Good morning,

ProTechnics is requesting an amendment to add Class I wells as a disposal option for radioactive tracer beads. The amendment request is attached. Additionally, an EPA permit from Alaska that allows radioactive tracer beads to be injected into the Class I well is attached. ProTechnics was recently made aware of this permit, so we are seeking the addition to our license to be able to pursue that avenue of disposal.

Please let me know if you have any questions or need additional information.

Thanks,

Pete



Pete Hernandez Radiation Safety Manager ProTechnics, a Division of Core Laboratories M: 346.391.4558 | <u>Pete.Hernandez@corelab.com</u> 6510 West Sam Houston Parkway N. Houston, Texas 77041



#### ISSUANCE DATE AND SIGNATURE PAGE U.S. ENVIRONMENTAL PROTECTION AGENCY UNDERGROUND INJECTION CONTROL PERMIT: CLASS I

#### Permit Number AK11017-A

In compliance with provisions of the Safe Drinking Water Act (SDWA), as amended, (42 U.S.C. 300f-300j-9), and attendant regulations incorporated by the U.S. Environmental Protection Agency (EPA) under Title 40 of the Code of Federal Regulations (C.F.R.), <u>ConocoPhillips Alaska, Inc. (Permittee)</u> is authorized to inject non-hazardous industrial waste utilizing up to two Class I injection wells (NDSDW1 and NDSDW2) at the Oooguruk Unit (OU) Nuna Project (NUNA) Nuna drill site (NDS), located in North Slope Borough, Alaska. The onshore NDS is in the Kuparuk River Unit (KRU) near the Beaufort Sea, about 250 miles north of the Arctic Circle, and approximately 40 miles west of Deadhorse, Alaska. The well(s) will inject below permafrost into the OU. The NDS is 5.5 miles south-southwest of the Oooguruk drill site.

Injection is authorized below permafrost (below Kingak Formation (KiF) and above Kavik Formation (KaF)) into the hypersaline deep subsurface injection zones 7400 (+/- 50) to 8700 (+/- 50) feet true vertical depth (TVD) in reference-to-Kelly-bushing (TVDRKB) including Sag River Formation (SRF) and Ivishak Formation (IF), in accordance with Title 40 C.F.R. §144.33 and the conditions set forth herein. See reference well Texaco Colville Delta Number 1 well (TCD#1).

The proposed disposal well(s) are in an area where there are no underground sources of drinking water (USDW) below the permafrost. Data from NUNA OU and vicinity show the base of permafrost is commonly 1500 feet below ground surface. Below the continuous permafrost hypersaline aquifer, salinity values average 14,204 parts per million (ppm) in the SRF and 23,645 ppm in the IF. Log data derived mean sodium chloride (NaCl) equivalent salinity values approximate the total dissolved solids (TDS) content. Based on a review of log data from six wells near OU, on September 19, 2014 the EPA determined that specific portions of aquifers in the SRF and IF within one-half mile radius of the boreholes of proposed wells NDSDW1 and NDSDW2 do not qualify under 40 C.F.R. §144.3 as USDW because the concentrations of TDS exceeds 10,000 mg/l in these portions of the aquifers.

The proposed top-hole location for well NDSDW1 is latitude 70.422443 degrees North, longitude 150.324629 degrees West. The proposed top-hole location for well NDSDW2 is latitude 70.420071 degrees North, longitude 150.266341 degrees West. All locations use the North American Datum 1983 (NAD83) coordinate convention. The disposal wells are subject to substitution, change or correction.

The permit limits injection to naturally saline injection intervals in the SRF and IF in the OU. Injection of hazardous waste as defined under the Resource Conservation and Recovery Act (RCRA), as amended, (42 USC 6901) or radioactive wastes (other than naturally occurring radioactive material – NORM from pipe scale and radioactive tracer beads) are not authorized under this permit.

All references to Title 40 of the Code of Federal Regulations are to regulation that is in effect on the date that this permit is issued. Figures and appendices are referenced to the permit application for NUNA OU UIC Permit AK-110017-A dated 2016. This permit shall become effective on September 15, 2016, in accordance with 40 C.F.R. § 124.15. This permit and the authorization to inject shall expire at midnight, September 14, 2026, unless terminated.

This permit modified on the date below to authorize transfer of the permit to the new facility owner, ConocoPhillips Alaska, Inc.

Modification date: 11/5/2019

Daniel D. Opalski, Director Water Division U.S. Environmental Protection Agency Region 10 (M/S: 19-H16) 1200 Sixth Avenue, Suite 155 Seattle, WA 9810

### TABLE OF CONTENTS

PART I GENERAL PERMIT CONDITIONS	3
EFFECT OF PERMIT	3
PERMIT ACTIONS	3
Modification, Reissuance, or Termination	3
Transfer of Permits	3
SEVERABILITY	3
CONFIDENTIALITY	3
GENERAL DUTIES AND REQUIREMENTS	4
Duty to Comply	4
Penalties for Violations of Permit Conditions	4
Duty to Reapply	4
Need to Halt or Reduce Activity Not a Defense	4
Duty to Mitigate	4
Proper Operation and Maintenance	4
Duty to Provide Information	5
Inspection and Entry	5
Records	5
Reporting Requirements	6
Anticipated Noncompliance	7
Twenty-Four Hour Reporting	7
Other Noncompliance	7
<u>Reporting Corrections</u>	7
Signatory Requirements	7
PLUGGING AND ABANDONMENT	8
Notice of Plugging and Abandonment	8
Plugging and Abandonment Report	8
Cessation Limitation	8
Cost Estimate for Plugging and Abandonment	8
FINANCIAL RESPONSIBILITY	9
PART II WELL SPECIFIC CONDITIONS	10
<u>CONSTRUCTION</u>	10
Casing and Cementing Tubing and Dealers Specifications	10
<u>I ublig and Packer Specifications</u>	10
CORRECTIVE ACTION	11
WELL ODED ATION	11
During Injection	11
<u>During injection</u> Mechanical Integrity	12
Injection Zone	14
Waivers to LIIC Program Requirements	14
Injection Rate and Pressure	15
Annulus Pressure	15
Injection Fluid Limitation	15
MONITORING	16
Monitoring Requirements	16
Continuous Monitoring Devices	16
Monitoring Direct Waste Injection	16
Alarms and Operational Modifications	16
REPORTING REQUIREMENTS	16
Quarterly Reports	16
Annual Reports	17
Report Certification	17

### PART I

#### GENERAL PERMIT CONDITIONS

#### A. EFFECT OF PERMIT

The permittee is allowed to engage in underground injection in accordance with the conditions of this permit. The permittee shall not construct, operate, maintain, convert, plug, abandon, or conduct any other activity in a manner that allows the movement of any contaminant into USDWs, except as authorized by 40 C.F.R. Part 146. The underground injection activity, otherwise authorized by this permit, shall not allow the movement of fluid containing any contaminant into USDWs, if the presence of that contaminant may cause a violation of any primary drinking water regulation under 40 C.F.R. Part 141 or may otherwise adversely affect the health of persons or the environment. Compliance with this permit during its term constitutes compliance for purposes of enforcement with Part C of the SDWA. Such compliance does not constitute a defense to any action brought under Section 1431 of the SDWA, or any other law governing protection of public health or the environment.

This permit may be modified, revoked and reissued, or terminated during its term for cause. Issuance of this permit does not convey property rights or mineral rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of State or local law or regulations. This permit does not authorize any above ground generating, handling, storage, or treatment facilities.

This permit is based on the permit application submitted by the permittee in 2016, and supplemental material related to a No USDW ruling by EPA dated September 19, 2014.

#### B. PERMIT ACTIONS

#### 1. Modification, Reissuance, or Termination

This permit may be modified, revoked and reissued, or terminated for cause as specified in 40 C.F.R. §§ 144.39 and 144.40. In addition, the permit can undergo minor modifications for cause as specified in 40 C.F.R. § 144.41. The filing of a request for a permit modification, revocation and reissuance, or termination, or the notification of planned changes, or anticipated noncompliance on the part of the permittee does not stay the applicability or enforceability of any permit condition.

#### 2. <u>Transfer of Permits</u>

This permit is not transferable to any person except after notice to the Director on APPLICATION TO TRANSFER PERMIT (EPA Form 7520-7) and in accordance with 40 C.F.R. § 144.38. The Director may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the SDWA. Upon request, electronic submittal may be approved by an EPA authorized representative.

#### C. <u>SEVERABILITY</u>

The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

#### D. <u>CONFIDENTIALITY</u>

In accordance with 40 C.F.R. Part 2, any information submitted to EPA pursuant to this permit may be claimed as confidential by the submitter. Any such claim must be asserted at the time of

submission in the manner prescribed in 40 C.F.R.§2.203 and on the application form or instructions, or, in the case of other submissions, by stamping the words "confidential" or "confidential business information" on each page containing such information. If no claim is made at the time of submission, EPA may make the information available to the public without further notice. If a claim is asserted, the information will be treated in accordance with the procedures in 40 C.F.R. Part 2 (Public Information).

Claims of confidentiality for the following information will be denied:

- 1. The name and address of the permittee.
- 2. Information that deals with the existence, absence, or level of contaminants in drinking water.

#### E. <u>GENERAL DUTIES AND REQUIREMENTS</u>

1. Duty to Comply

The permittee shall comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the SDWA and is grounds for enforcement action, permit termination, revocation and reissuance, modification, or for denial of a permit renewal application; except that the permittee need not comply with the provisions of this permit to the extent and for the duration such noncompliance is authorized in an emergency permit under 40 C.F.R. § 144.34.

2. <u>Penalties for Violations of Permit Conditions</u>

Any person who violates a permit condition is subject to a civil penalty value calculated on a per day basis of such violation. Any person who willfully or negligently violates permit conditions is subject to a fine of not more than \$37,500 per day of violation and/or being imprisoned for not more than (3) years.

3. Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit. To be timely, a complete application for a new permit must be received at least 180 days before this permit expires.

4. <u>Need to Halt or Reduce Activity Not a Defense</u>

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

5. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit.

#### 6. Proper Operation and Maintenance

The permittee shall, at all times, properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this permit. De-characterized waste may be appropriately disposed in a Class I non-hazardous well [refer to 40 C.F.R. § 148.1(d)].

#### 7. <u>Duty to Provide Information</u>

The permittee shall provide to the Director, within a reasonable time, any information, including logging data that the Director may request to determine whether cause exists for modifying, revoking and reissuing, terminating this permit, or to determine compliance with this permit. The permittee shall also provide to the Director, upon request, copies of records, including logging data, required to be kept by this permit

#### 8. Inspection and Entry

The permittee shall allow the Director, or an authorized EPA representative, upon the presentation of credentials and other documents as may be required by law to:

- a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this permit;
- b. Have access to and copy, at reasonable times, any records (including logging data) that are kept under the conditions of this permit;
- c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
- d. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by SDWA, any contaminants or parameters at any location.

#### 9. <u>Records</u>

- a. The permittee shall retain records and all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit and records of all data used to complete this permit application for a period of at least three years from the date of the sample, measurement, report or application. These periods may be extended by request of the Director at any time. This permit does not require retention of hard copies or original records for the record keeping requirements of the permit are met by retaining the records in electronic or original hard copy format. The original records are not required to be retained when electronic versions are retained.
- b. The permittee shall retain records concerning the nature and composition of all injected fluids until three years after the completion of plugging and abandonment. At the conclusion of the retention period, if the Director so requests, the permittee shall deliver the records to the Director. The permittee shall continue to retain the records after the three-year retention period unless he delivers the records to the Director or obtains written approval from the Director to discard the records. This permit does not require retention of hard copies or original records for the record keeping requirements of the permit are met by retaining the records in electronic or original hard copy format. The original records are not required to be retained when electronic versions are retained.
- c. Records of monitoring information shall include:
  - (1) The date, exact place, and time of sampling or measurements;
  - (2) The name(s) of the individual(s) who performed the sampling or measurements;
  - (3) The date(s) analyses were performed;
  - (4) The name(s) of the individual(s) who performed the analyses;
  - (5) The analytical techniques or methods used; and

- (6) The results of such analyses.
- d. Monitoring of the nature of injected fluids shall comply with applicable analytical methods cited and described in Table I of 40 C.F.R. § 136.3, in appendix III of 40 C.F.R. Part 261, or in certain circumstances by other methods that have been approved by the Administrator.
- e. All environmental measurements required by the permit, including, but not limited to measurements of pressure, temperature, mechanical integrity, and chemical analyses shall be done in accordance with EPA's Quality Assurance Program Plan.
- f. As part of the COMPLETION REPORT, the permittee must submit a PLAN that describes the procedures to be carried out to obtain detailed chemical and physical analysis of representative samples of the waste including the quality assurance procedures used including the following:
  - (1) The parameters for which the waste will be analyzed and the rationale for the selection of these parameters;
  - (2) The test methods that will be used to test for these parameters; and
  - (3) The sampling method that will be used to obtain a representative sample of the waste to be analyzed.

This permit covers two proposed wells, including Class I well NDSDW1 and Class I well NDSDW2. Substitute wells warrant review prior to approval for substitution. The waste analysis plan (WAP) from the permit application may be incorporated by reference to satisfy the WAP plan submittal requirements. An updated WAP may be incorporated by reference replacing the WAP from the permit application. Upon request of the EPA authorized representative, two field copies of logging data shall be provided to the witnessing official within 24 hours of the logging event. As part of the completion report, two copies of the final logging data shall be provided with the completion report.

g. The permittee shall require a written manifest for each batch load of waste received for waste streams that are not hard piped and continuous. The manifest shall contain a description of the nature and composition of all injected fluids, date of receipt, source of material received for disposal, name and address of the waste generator, a description of the monitoring performed and the results, a statement stating if the waste is exempt from regulation as hazardous waste as defined by 40 C.F.R. § 261.4, and any information on extraordinary occurrences.

For waste streams that are hard-piped continuously from the source to the wellhead, the permittee shall also provide for continuous, recorded measurement of the discharge rate and shall provide such sampling and testing as may be necessary to provide a description of the nature and composition of all injected fluids, and to support any statements that the waste is exempt from regulation as hazardous waste as defined by 40 C.F.R. § 261.4.

h. Dates of most recent calibration or maintenance of gauges and meters used for monitoring required by this permit shall be noted on the gauge or meter. Earlier records shall be available through a computerized maintenance history database.

#### 10. <u>Reporting Requirements</u>

The permittee shall give notice to the Director, as soon as possible, of any planned physical alterations or additions to the permitted facility or changes in type of injected waste.

#### 11. <u>Anticipated Noncompliance</u>

The permittee shall give advance notice to the Director of any significant planned changes in the permitted facility or activity that may result in noncompliance with permit requirements.

#### 12. Twenty-Four Hour Reporting

- a. The permittee shall report to the Director or an EPA authorized representative any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. If EPA or the permittee discovers that fluids have moved above the upper confining zone along a wellbore within the area of review (AOR), then injection shall cease until the fluid movement problem can be diagnosed and corrected. The following shall be included as information that must be reported orally within 24 hours:
  - (1) Any monitoring or other information that indicates that any contaminant may cause an endangerment to an underground source of drinking water.
  - (2) Any noncompliance with a permit condition or malfunction of the injection system.
- b. A written submission shall also be provided in electronic format for release to the public within five days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact date and times; and, if the noncompliance has not been corrected, the anticipated time it is expected to continue and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The permittee shall provide email notice to affected stakeholders, such as Tribal Government(s), if warranted as determined by an EPA authorized representative.
- 13. Other Noncompliance

The permittee shall report all other instances of noncompliance not otherwise reported at the time monitoring reports are submitted. The reports shall contain the information listed in Permit Condition Part I E.12.b.

14. <u>Reporting Corrections</u>

When the permittee becomes aware that he/she failed to submit any relevant facts in the permit application or submitted incorrect information in a permit application or in any report to the Director, the permittee shall promptly submit such facts or information.

- 15. Signatory Requirements
  - a. All permit applications, reports required by this permit and other information requested by the Director shall be signed by a principal executive officer of at least the level of vice-president, or by a duly authorized representative of that person. A person is a duly authorized representative only if:
    - (1) The authorization is made in writing by a principal executive of at least the level of vice-president.
    - (2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility. A duly authorized representative may thus be either a named individual or any individual occupying a named position.

- (3) The written authorization record is retained on site, an electronic scan copy is submitted to the Director and upon request the original is submitted to the Director or an EPA authorized representative.
- b. If an authorization under paragraph 15.a. of this section is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph 15.a. of this section must be submitted to the Director prior to or together with any reports, information, or applications to be signed by an EPA authorized representative.
- c. Any person signing a document under paragraph 15.a. of this section shall make the following certification:

"I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

### F. PLUGGING AND ABANDONMENT

1. Notice of Plugging and Abandonment

The permittee shall notify the Director no later than 45 days before conversion or abandonment of the well.

2. <u>Plugging and Abandonment Report</u>

The permittee shall plug and abandon the well as provided in the Plugging and Abandonment Plan (7520-6 Attachment Q) of UIC Class I Permit Application submitted by the permittee, which is hereby incorporated as a part of this permit. Within 60 days after plugging any well the permittee shall submit a report to the Director in accordance with 40 C.F.R. § 144.51(p). EPA reserves the right to change the manner in which the well will be plugged if the well is not proven to be consistent with EPA requirements for construction and mechanical integrity. The Director may ask the permittee to update the estimated plugging cost periodically.

3. <u>Cessation Limitation</u>

After a cessation of operations of two years, the permittee shall plug and abandon the well in accordance with the plan unless he/she:

- a. Provides notice to the Director; and
- b. Demonstrates that the well will be used in the future; or
- c. Describes actions or procedures, satisfactory to the Director that the permittee will take to ensure that the well will not endanger underground sources of drinking water during the period of temporary abandonment. These actions and procedures shall include compliance with the technical requirements applicable to active injection wells unless waived by the Director.
- 4. Cost Estimate for Plugging and Abandonment
  - a. The permittee is required in the permit application (see 7520-6 attachment R) to estimate the cost of plugging and abandonment of the permitted Class I UIC well(s) per well. Please

refer to the permit application (7520-6 attachment R) for the plugging and abandonment cost estimates(s) per well for the year the application is submitted.

- b. The permittee must submit financial assurance and a revised estimate prior to April 30 of each year. The estimate shall be made in accord with 40 C.F.R. § 144.62. The Director or an EPA authorized representative may approve electronic submittal of this requirement provided the permittee retains the original and submits the original upon request.
- c. The permittee must keep at the facility or at the permittee central files in Alaska during the operating life of the facility the latest plugging and abandonment cost estimate.
- d. When the cost estimate changes, the documentation submitted under 40 C.F.R. § 144.63(f) shall be amended as well to ensure that appropriate financial assurance for plugging and abandonment is maintained continuously.
- e. The permittee must notify the Director by registered mail of the commencement of a voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S. Code, naming the owner or operator as debtor, within ten (10) business days after the commencement of the proceeding.

#### G. FINANCIAL RESPONSIBILITY

The permittee shall maintain continuous compliance with the requirement to maintain financial responsibility and resources to close, plug, and abandon the underground injection well. If the financial test and corporate guarantee provided under 40 C.F.R. § 144.63(f) should change, the permittee shall immediately notify the Director. The permittee shall not substitute an alternative demonstration of financial responsibility for that which the Director has approved, unless it has previously submitted evidence of that alternative demonstration to the Director and the Director notifies him that the alternative demonstration of financial responsibility is acceptable.

Consistent with 40 C.F.R.§144.63 and regarding incapacity of owners or operators, guarantors, or financial institutions, the permittee must notify the Director by registered mail of the commencement of a voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S. Code, naming the owner or operator as debtor, within ten (10) business days after the commencement of the proceeding. Furthermore, an owner or operator must notify the Regional Administrator by certified mail of the commencement of a voluntary or involuntary proceeding under title 11 (Bankruptcy), U.S. Code, naming the owner or operator as debtor, within ten (10) business days after the commencement of the proceeding. Furthermore, or operator as debtor, within ten (10) business days after the commencement of the proceeding. A guarantor of a corporate guarantee as specified in 40 C.F.R. § 144.63(f) must make such a notification if he is named as debtor, as required under the terms of the guarantee (See 40 C.F.R. §144.70(f)).

#### PART II

#### WELL SPECIFIC CONDITIONS

#### A. CONSTRUCTION

#### 1. Casing and Cementing of Existing Sidetrack and/or Replacement Wells

The permittee shall case and cement the well(s) to prevent the movement of fluids into or between USDWs other than the authorized injection interval (see II.C.4, below). Casing and cement shall be installed in accordance with a casing and cement program approved by the Director and in accordance with EPA Class I well construction practices (40 C.F.R. § 146.12) and the State of Alaska/AOGCC Regulations (20 AAC § 25.412 and 20 AAC § 25.252). For any Class I wells to be drilled at this location (including replacement/sidetracks), in addition to the above requirements, the permittee shall provide not less than 30 days advance notice to the Director or EPA authorized representative to witness all cementing operations. The 30 days advance notice requirement to witness cementing operations may be revised (either increased or decreased in duration) by the Director or EPA authorized representative). If primary cement returns to surface are not observed for the (13 3/8 inch or other) surface casing cementing procedure, the Director or EPA authorized representative is to be notified as to the nature of the augmented testing proposed to ensure the integrity of the cement bond and adequacy of any Top Job procedure. The Cement Bond/Ultrasonic Imaging (USIT or other) logs and pressure tests (leak off test and/or formation integrity test) will be run for both the (13 3/8 inch or other) surface and (9 5/8 inch and 7 inch or other) injection casings to confirm zonal isolation and verify casing integrity. Upon request of the Director or EPA authorized representative, the permittee shall provide all data requested, including but not limited to two field copies of all logging data shall be provided to the witnessing official within 24 hours at the time (within 24 hours) of the well logging activities and two final log copies with the final completion report.

Should a change(s) be required to the design casing and cementing program (due to unanticipated conditions), the Director or EPA authorized representative shall be notified as to the nature of the change(s), so that approval is obtained from the Director or EPA authorized representative enabling the well to be drilled and completed in a safe and successful manner.

The casing, cementing and well construction data will be in compliance with the procedures outlined in construction procedures and construction details (including but not limited to well schematics (7520-6 Attachments L and M) of the permit application).

#### 2. Tubing, Packer and Completion Details of Existing Sidetrack and/or Replacement Wells

The well shall inject fluids through tubing with a packer. Tubing and packer shall be installed in accordance with the procedures in the permit application. In the event that a packer needs to be set or re-set at a revised depth at a later date, the permittee will perform a mechanical integrity test prior to resuming injection, submit the necessary data and obtain authorization from EPA prior to resuming injection. The packer will be set no more than 100 feet measured depth (MD) from the top of the injection zone unless a greater spacing from the packer to the top of the injection zone is specified and authorized by the Director or EPA authorized representative.

#### 3. <u>New Wells in the Area of Review</u>

EPA has set a quarter mile radius as the Area of Review (AOR) for this Class I UIC permit application. New Class I permitted UIC wells shall be installed in accordance with a casing and cement program approved by the Director and in accordance with EPA Class I well construction practices (40 C.F.R. § 146.12) and will also follow the State of Alaska/AOGCC Regulations (20 AAC 25.412 and 20 AAC 25.252). New wells within the AOR shall be constructed in

accordance with the Alaska Oil and Gas Conservation Commission Regulations Title 20 Chapter 25. If in the future, any development or service wells are drilled that penetrate the injection intervals within the area of review, these wells shall have casing cemented to the formation throughout the entire section from 200 feet TVD below to 200 feet TVD above the (proposed, revised or updated) injection zone as identified in the permit application.

#### B. CORRECTIVE ACTION

The applicant has identified no wells in the Area of Review (AOR) which require corrective action in order to prevent fluids from moving above the confining zone. If the applicant later discovers that a well or wells within the AOR require(s) corrective action to prevent fluid movement, then the applicant shall inform the EPA upon such discovery and provide a corrective action plan for EPA review and approval.

#### C. <u>WELL OPERATION</u>

#### 1. Prior to Commencing Injection

Unless the well has previously (within 180 days) fulfilled requirements of Part II C.1., prior to commencing injection of new, existing sidetrack and/or replacement wells, injection operations pursuant to this permit may not commence until:

- a. Construction is complete and the permittee has submitted two copies of COMPLETION FORM (with logging data) FOR INJECTION WELLS (EPA Form 7520-9, see Attachments to be submitted with the completion report); and
  - (1) The Director or EPA authorized representative has inspected or otherwise reviewed the new, existing, sidetrack or replacement injection well(s) and finds it is in compliance with the conditions of the permit; or
  - (2) The permittee has not received notice from the Director or EPA authorized representative of intent to inspect or otherwise review the new, sidetrack or replacement injection well(s) within thirteen days of EPA receiving the COMPLETION REPORT (with logging data) in which case prior inspection or review is waived and the permittee may commence injection.
- b. The permittee demonstrates that the well has mechanical integrity as described in Part II.C.3. Mechanical Integrity below and the permittee has received notice from the Director or EPA authorized representative that such a demonstration is satisfactory. The permittee shall notify EPA at least two weeks prior to conducting this initial test so that an EPA authorized representative may be present and
- c. The permittee has conducted a step-rate injection test (SRT) and submitted a preliminary report to EPA that summarizes the results. However, upon approval of the Director or EPA authorized representative, if an SRT was conducted on the subject well and the results were submitted to the EPA, then the permittee is not required to conduct another SRT prior to resumption of Class I injection activities or prior to permit renewal.

### 2. During Injection

The OU Class I facilities shall be manned 24 hours per day by trained and qualified operators while injection is occurring. During injection, the well injection pressure, tubing-casing (inner) annulus pressure, and injection rate will be monitored on a continuous basis. Out-of-limit alarms and shut-off systems will be installed and the injection facility plant shall be monitored by trained and qualified operators during injection. Visual and automatic monitoring of the tubing-

casing (inner annulus) and tubing pressures will occur routinely with pre-set, out-of-limit alarms to inform supervisory personnel.

The wellhead, controls, and monitoring instrumentation will be enclosed in an insulated structure.

- 3. Mechanical Integrity
  - a. <u>Standards</u>

The injection well(s) must have and maintain mechanical integrity pursuant to 40 C.F.R. § 146.8.

b. Prohibition without Demonstration of Mechanical Integrity

Injection operations are prohibited after the effective date of this permit unless the permittee has conducted the following tests and submitted the results to the Director:

- (1) In order to demonstrate there is no significant leak in the casing, tubing or packer, the tubing/casing annulus must be pressure tested, in conformation with State of Alaska regulation 200 AAC 25.412 which requires the casing to be tested to 0.25 psi/ft multiplied times the vertical depth of the packer, but not to exceed 70% if the minimum yield strength of the casing. Pressure tests shall show a stabilizing tendency. That is, the pressure may not decline more than 10 percent during the 30minute test period and shall experience less than one-third of its total loss in the second (last) half of the 30-minute test period. If the total loss exceeds 10 percent or if the loss during the second 15 minute period is equal to or greater than one-half the loss during the first 15 minutes, the permittee may extend the test period for an additional 30 minutes to demonstrate stabilization. However, the MIT meets criteria at the completion of the first 30 minute test if the total pressure loss in the 30 minute period is 2% or less and the pressure loss in the first 15 minutes (first time period) is more than the pressure loss in the second 15 minutes (second time period). After the effective start date of this permit, the standard annulus pressure test (SAPT) will be required annually until expiration of the ten year permit period. This internal mechanical integrity test (SAPT) will be required annually if the well is active and once every two years if the well is inactive. If approved by the Director or EPA authorized representative, the internal mechanical integrity test due dates may be extended up to three months to accommodate constraints resulting from drilling, operational or other logistics related to operating in the remote environment. At the discretion of the Director and depending on the results of the internal annulus mechanical integrity test data, the frequency for demonstrating internal mechanical integrity (no leaks in the tubing-casing annulus or in the tubing-packer assembly) may be revised (either increase or decrease in frequency) as specified and approved by the Director or EPA authorized representative. If a well has been on injection and has successfully demonstrated its mechanical integrity (both internal and external) on an annual basis (with the tests being witnessed by an EPA authorized representative), the well is approved to continue injection upon approval of a permit renewal.
- (2) To detect movement of fluids in vertical channels adjacent to the well bore and to determine that the confining zone is not fractured, an approved fluid movement test shall be conducted at an injection pressure at least equal to the average continuous injection pressure observed in the previous six months. Approved fluid movement tests include, but are not limited to tracer surveys, temperature survey logs (conducted after a 12 hour shut-in/ or at the discretion of the EPA authorized

representative), noise logs, oxygen activation/water flow logs, borax pulse neutron logs, or other equivalent logs. Fluid movement test procedures must be submitted 30 days in advance and are subject to prior approval by the Director or an EPA authorized representative. Upon request, two field copies shall be provided to the EPA authorized representative immediately upon completion of the logging activities, and final copies of all logs shall be submitted to EPA accompanied by a descriptive and interpretive report. Fluid movement/confinement logs will be run initially upon completion of a new, existing sidetrack and/or replacement well and prior to initiation of injection at start-up. After acquiring this baseline data, the fluid movement/confinement logs will be required every year while the well is active until expiration of the ten year permit period. If approved by the Director or EPA authorized representative, the external mechanical integrity test due dates may be extended up to three months to accommodate constraints related to operating in the remote environment. At the discretion of the Director or an EPA authorized representative, and depending on the results of the baseline data, the frequency for demonstrating external mechanical integrity (no flow behind pipe and isolation above injection interval) and utilizing alternative diagnostic techniques, may be revised (either increase or decrease in frequency) as specified and approved by the Director or an EPA authorized representative.

- (3) Internal tubing inspection logs (pipe analysis logs, caliper logs, or other equivalent logs) shall be run once every two years while the well is active and may be revised (either increase or decrease in frequency) at the Director or EPA authorized representative's discretion, to monitor well condition, thickness and integrity of the downhole tubing. Inspection log test procedures must be submitted 30 days in advance and are subject to prior approval by the Director or an EPA authorized representative. Tubing liners may be taken into consideration regarding this inspection requirement. If approved by the Director or EPA authorized representative, the test due dates may be extended up to three months to accommodate constraints related to operating in the remote environment. Unless waived by the EPA authorized representative, any exposed section of the injection casing will have to be logged during any scheduled workover for tubing change-out etc. Copies of the logs shall be accompanied by a descriptive and interpretive report.
- c. Terms and Reporting
  - (1) Two copies of the log(s) and two copies of a descriptive and interpretive report of the mechanical integrity tests identified in 3.b (2) and 3.b (3) shall be submitted within 45 days of completion of the logging. Upon request by an EPA authorized representative, two field copies of log(s) shall be submitted to the EPA authorized representative immediately upon completion of the field logging event.
  - (2) Mechanical integrity shall also be demonstrated by the pressure test in 3.b. (1) any time the tubing is removed from the well or if a loss of mechanical integrity becomes evident during operation. The permittee shall report the results of such tests within 45 days of completion of the tests.
  - (3) After the <u>initial</u> mechanical integrity demonstration, the permittee shall notify the Director of intent to demonstrate mechanical integrity at least 30 days prior to subsequent demonstrations.
  - (4) The Director will notify the permittee of the acceptability of the mechanical integrity demonstration within 13 days of receipt of the results of the mechanical

integrity tests. Injection operations may continue during this 13-day review period. If the Director does not respond within 13 days, injection may continue.

- (5) In the event that the well fails to demonstrate mechanical integrity during a test or a loss of mechanical integrity occurs during operation, the permittee shall halt operation immediately and shall not resume operation until the Director or an EPA authorized representative gives approval to resume injection.
- (6) The Director may, by written notice, require the permittee to demonstrate mechanical integrity at any time.
- 4. Injection Zone

Injection shall be limited to the injection zone (IZ) intervals that include the SRF and IF. The top of the IZ is 7400 +/- 50 feet TVD RKB in the proposed UIC well NDSDW1. The base of the IZ is 8700 +/- 50 feet TVD RKB in the proposed UIC well NDSDW1. Depths in an alternate well (NDSDW2) would vary. The upper confining zone (UCZ) includes the Kingak Formation. The top of the UCZ is approximately 6672 feet TVD RKB in the proposed UIC well NDSDW1. The base of the UCZ is approximately 7671 feet TVD RKB in the proposed UIC well NDSDW1. The lower confining zone (LCZ) includes the Kavik Formation. The top of the LCZ is at the base of the IZ at 8700 +/- 50 feet TVD RKB in the proposed UIC well NDSDW1.

For reference and correlation purposes, in the TCD#1 reference well, the UCZ base is at 7579 feet MD/-7500 feet TVDss (shale dominant from 6375-7579 feet MD) and the LCZ top is at 8582 feet MD/-8500 feet TVDss and the LCZ base is at 8707 feet MD/-8675 feet TVDss (Note: shale is dominant from 8582-8707 feet MD).

5. Waivers to UIC Program Requirements

As a result of the subsurface aquifer conditions, in the vicinity of the proposed injection wells (NDSDW1 and NDSDW2), on September 19, 2014, EPA determined aquifers do not qualify as an USDW for portions of aquifers from 7400 +/- 50 TVD RKB to 8700 +/- 50 feet TVD RKB within 1/2 mile of the boreholes of the proposed injection wells. EPA is granting the following waivers of UIC regulatory program requirements as listed below:

- Compatibility of Formation and Injectate [40 C.F.R. §§ 146.12 (e) and 146.14 (a) (8)]: Based upon the applicability of past injection studies, petrophysical logging data, existing rock and fluid samples plus successful injection practices into formations in the Prudhoe Bay, Alpine and OU vicinity, EPA is waiving the above two requirements for any additional sampling and characterization of formation fluids and injection rock matrix in order to determine whether or not they are compatible with the proposed injectate.
- (ii) Injection Zone Fracturing, Ambient Monitoring and Pressure Buildup [40 C.F.R. § 146.13 (a) (1), (b) and (d) (1) and (2)]: Based on log surveillance results into formations in the North Slope vicinity that consistently verify no significant upward movement of injected fluids, continuity of geologic formations and that transmission through faulting is not likely to transmit fluid above the confining zone, and there are no improperly sealed, completed, or abandoned wellbores in the area of review, EPA is waiving the above three requirements of an ambient monitoring of saline aquifers above the confining zone, monitoring the strata overlying the confining zone for fluid movement and a monitoring program including a pressure buildup of the injection zone annually. Also, based on the above, EPA is waiving the prohibition against fracturing the injection interval, and would instead allow fracturing to a minor extent at the injection well confined to the injection zone so long as new fractures are not initiated nor existing ones propagated within the

upper and lower confining zone. However, in no case shall injection pressure initiate fractures in the confining intervals above and below the injection zone. Authorized injection will be limited to the permitted injection zones in the SRF and IF. However, external mechanical integrity demonstrations are required to verify that all injected fluids are exiting in the injection interval and that there is no flow behind pipe due to channeling etc. [See Part II C.3.b (2)]

#### 6. Injection Rate and Pressure

Injection pressures shall not initiate new fractures or propagate existing fractures in the upper confining zone as that stratigraphic interval is described in the (NUNA) Texaco Colville Delta-1 Type Log (7520-6 Attachment F: See Exhibit 3-1) in the permit application. Injection pressures will average between 1200-3500 psi. Neither shall the maximum injection pressure, measured at the wellhead, exceed 3500 pounds per square inch (psig), except as follows.

In the event of a plant shut-down or outage, there may be instances where injection pressures exceed 3500 psi (unrelated to fluid injection activities). In such instances, the permittee shall notify the Director or an EPA authorized representative by telephone or electronic mail within 24 hours of the initial exceedance of the 3500 psig limitation and shall submit a written incident report not later than 10 days thereafter. Upon request, electronic mail submittal of the incident report may be approved by an EPA authorized representative.

It should be noted that the wellhead working pressure limit of 5000 psig should not be exceeded at any time. Besides alarms and automatic shutdown controls, the wellhead assembly will include a surface safety valve to provide additional security.

7. <u>Annulus Pressure</u>

The annulus between the tubing and the long string casing shall be filled with a corrosion inhibited non-freezing solution. To accommodate swings in wellbore temperatures and tubing thermal expansion, a positive surface pressure up to 1500 psig is authorized for the inner annulus (tubing x long string injection casing).

Since the tubing-casing annulus pressure will vary due to temperature changes, the high-low annulus pressure limits can be adjusted, if necessary and upon approval by the Director or an EPA authorized representative, to include both the summer and winter ambient temperature variations.

<u>Note</u>: The authorization of up to 1500 psi on the inner annulus is to enable shut-down and alarm systems to be set at appropriate pressure limits, so as not to shut-down the facility from unintended causes not related to direct injection activities, and is not intended to allow the permittee to continue to maintain the well on injection, in the event of a loss of mechanical integrity or when there is pressure build-up either in the tubing by inner annulus or between the injection casing and surface casing (between the inner annulus by outer annulus), resulting in a potential sustained casing pressure scenario. In the event of a loss of mechanical integrity, then the permittee has to meet the requirements as outlined in Part II.C.3.c.5 of this permit.

#### 8. Injection Fluid Limitation

This permit only authorizes the injection of those fluids identified in the permit documentation. De-characterized waste may be appropriately disposed in a Class I non-hazardous well (refer to 40 C.F.R. § 148.1(d)). Fluids generated from Class I injection well construction and well workover, and fluids generated from the operation and maintenance of Class I injection wells and associated injection well piping, may be disposed in a Class I non-hazardous injection well. No radioactive wastes other than naturally occurring radioactive material (NORM) from pipe

scale and/or radioactive tracer beads shall be injected for disposal. In the event that third party wastes are accepted, the third party must certify the fluids are eligible for injection.

#### D. MONITORING

#### 1. Monitoring Requirements

Samples and measurements collected for the purpose of monitoring shall be representative of the monitored activity.

#### 2. <u>Continuous Monitoring Devices</u>

Continuous monitoring devices shall be installed, maintained, and used to monitor injection pressure and rate for those streams that are hard-piped and continuous, and to monitor the pressure of non-freezing solution in the annulus between the tubing and the long string casing. Calculated flow data are not acceptable except as a back-up system if the primary continuous injection rate device malfunctions. (For clarification, "continuous monitoring" refers to alarms and analogue readings such as pressure and rate that are displayed in the control room. Instrumentation is currently used to monitor key parameters. Alarms alert operators of high levels and can/do shut down pumps automatically if the high-high level is triggered. In this context "continuous" is a real-time tracking operation; although continuous data is not recorded).

#### 3. Monitoring Direct Waste Injection

Direct waste injection pumping operations at the well site shall be continuously manned and visually monitored. During these pumping operations, a chronological record of the time of day, a description of the waste pumped, injection rate and pressure, and well annulus pressure observations shall be maintained. The person in charge of the pumping operations must be identified on the pumping record.

- 4. <u>Alarms and Operational Modifications</u>
  - a. The permittee shall install, continuously operate, and maintain alarms to detect excess injection pressures and significant changes in annular fluid pressure. These alarms must be of sufficient placement and urgency to alert operators in all operating spaces including but not limited to the control room. The permittee shall install and maintain an emergency shutdown system to respond to losses of internal mechanical integrity as evidenced by deviations in the annular fluid pressures.
  - b. Plans and specifications for the alarms shall be submitted to the Director or EPA authorized representative prior to the initiation of injection.

### E. <u>REPORTING REQUIREMENTS</u>

Permittee hereby consents to EPA posting reports, plans, or other documents, on a website related to the UIC permit, should EPA choose to do so.

1. Quarterly Reports

The permittee shall submit quarterly reports to the Director containing the following information:

- a. Monthly average, maximum, and minimum values for injection pressure, rate, and volume shall be reported on INJECTION WELL MONITORING REPORT (EPA Form 7520-8). Upon request of an EPA authorized representative, an electronic submittal is required.
- b. Graphical plots of continuous injection pressure and rate monitoring.

- c. Daily monitoring data in an electronic format.
- d. Physical, chemical, and other relevant characteristics of the injected fluid.
- e. Any well workover or other significant maintenance of downhole or injection-related surface components.
- f. Results of all mechanical integrity tests performed since the previous report including any maintenance-related tests and any "practice" tests.
- g. Any other tests required by the Director.
- 2. <u>Annual Reports</u>

An annual performance report covering the period October 1 of the previous year through September 30 of the report year shall be submitted on or before November 30. The report shall include rate and pressure performance, surveillance logging, fill depth. Survey results and volumetric analyses of the disposal storage volume. When warranted, an estimate of the fracture growth shall also be included in the report. At the discretion of the Director or an EPA authorized representative and depending on other reporting requirements or the results of the injection data, the timing, content and frequency of this reporting may be revised (either increase or decrease in content or frequency) as specified and approved by the Director or an EPA authorized representative.

3. <u>Report Certification</u>

All reporting and notification required by this permit shall be signed and certified in accordance with Part I.E.15; electronically stored and maintained at the permittee's facility, or company headquarters; electronically submitted to an electronic (email) address provided by the Director or an EPA authorized representative; and upon request by the Director or an EPA authorized representative, submitted as a hard copy to the following address:

U.S. Environmental Protection Agency Region 10 UIC Team, Groundwater and Drinking Water Section, Water Division 1200 Sixth Avenue Suite 155, 20-CO4 Seattle, Washington 98101

### APPENDIX A

### **REPORTING FORMS**

#### Enclosed are EPA Forms:

- 7520-7 APPLICATION TO TRANSFER PERMIT
- 7520-8 INJECTION WELL MONITORING REPORT
- 7520-9 COMPLETION FORM FOR INJECTION WELLS

NRC FORM 532 (05-2016)	U.S. NUCLEAR REGULATORY COMMISSION		
ACKNOWLEDGEMENT - RECEIP	T OF CORRESPONDENCE		
Name and Address of Applicant and/or Licensee	Date		
	12/15/2023		
	License Number(s)		
ProTechnics Division of Core Laboratories LP	42-26928-01		
Jeremiah Diaz, RSO 6510 West Sam Houston Parkway North	Mail Control Number(s)		
Houston, TX 77041	638290		
	Licensing and/or Technical Reviewer or Branch		
	Giavanna Muffelletto		
This is to acknowledge receipt of your: 🖌 Letter and	I/or Application Dated: 12/13/2023		
The initial processing, which included an administrative	review, has been performed.		
✓     Amendment     Termination	New License Renewal		
There were no administrative omissions identified of	during our initial review.		
This is to acknowledge receipt of your application f above. Your application is deemed timely filed, and action has been taken by this office.	for renewal of the material(s) license identified accordingly, the license will not expire until final		
Your application for a new NRC license did not incl complete and submit NRC Form 531, Request for Ta following link: <u>http://www.nrc.gov/reading-rm/do</u>	ude your taxpayer identification number. Please axpayer Identification Number, located at the <u>c-collections/forms/nrc531.pdf</u>		
Follow the instructions on the form for submission			
The following administrative omissions have been	identified:		
Your application has been assigned the above listed MAIL CO action, please refer to this control number. Your application h note that the technical review, which is normally completed wi other requests), may identify additional omissions or require a concerning the processing of your application, our contact info	ONTROL NUMBER. When calling to inquire about this has been forwarded to a technical reviewer. Please ithin 180 days for a renewal application (90 days for all additional information. If you have any questions formation is listed below:		
Region IV U. S. Nuclear Regulatory Commissio DNMS/NMSB - B 1600 E. Lamar Boulevard Arlington, TX 76011-4511 (817) 200-1103 or (817) 200-1140	on		

#### BETWEEN:

Accounts Receivable/Payable and Regional Licensing Branches

### [ FOR ARPB USE ] INFORMATION FROM WBL

Program Code: 03110 Status Code: Pending Amendment Fee Category:5A Exp. Date: 07/31/2026 Fee Comments: Decom Fin Assur Reqd: N

)

# License Fee Worksheet - License Fee Transmittal

### A. REGION

1. APPLICATION ATTA Applicant/Licensee: Received Date: Docket Number: Mail Control Number: License Number: Action Type: 2. FEE ATTACHED Amount: N/A Check No.: N/A	ACHED ProTechnics Dir 3030429 638290 42-26928-01 Amendment	vision of Core Laboratories LP	
3. COMMENTS			
	Signed:	Giavanna Muffelletto	
	Date <sup>.</sup>	12/15/23	
B. LICENSE FEE MAN		ANCH (Check when milestone 03 is entered	1 1
1. Fee Category and <i>i</i>	Amount:		
2. Correct Fee Paid. A Amendment:	pplication may be	e processed for:	
Renewal:		_	
License:		_	
3. OTHER			
	Signed:		

Date:

R1201021

### Web-Based Licensing System WBL WORKSHEET

Agency: NRC	WBL WORKS	HEET			
DOCKET NUMBER: 3030429	LICENSE NUMBER: 42-2	26928-01 STATU	S: Pending Amend	lment	
MAIL CONTROL NUMBER: 63829	0 RECEIPT DATE:	ACTION	ACTION TYPE: Amendment		
DUE DATE:	INST. CODE: 26928	LICENSE	LICENSE REGION: Region 4		
LICENSE TYPE: 30	ENTITY TYPE: C	LICENSE	LICENSE GROUP: Industrial		
ISSUE DATE: ORIG	GINAL DATE: 06/13/1988	EXPIRAT	EXPIRATION DATE: 07/31/2026		
DECOMMISSIONING CATEGORY	: Group 2	LAST IS	SUE DATE:		
LICENSEE NAME: ProTechnics D	Division of Core Laboratories LP	DECOM	FIN ASSUR REQD	): N 4: N	
MAILING ADDRESS LINE1: 6510	West Sam Houston Parkway N	North CONT PI	_AN REQD: N	APPRV: N	
MAILING ADDRESS LINE 2:					
CITY: Houston	STATE: TX	ZIP: 77	ZIP: 77041		
CONTACT PERSON: PREFIX:	FIRST NAME: Je	Jeremiah MIDDLE INITIAL: J.			
LAST NAME: Diaz	SUFFIX:				
JOB TITLE: Corporate Radiation S	afety Offi PHONE: 713-328-23	21 FAX: 713-328-2163	EMAIL: jer	emiah.diaz@corelab	
BILLING ADDRESS LINE 1:					
BILLING ADDRESS LINE 2:					
CITY:	STATE: Texas	ZIP:			
BILLING CONTACT PERSON: FIRST NAME:		MIDDLE INITIAL:	LAST NAME:		
PHONE:	EMAIL:	FAX:			
PRIMARY PGM CODE: 03110	SECONDARY PGM CO	DE:			
INSPECTION REGION: Region 4	PRIORITY:	3			
RSO: PREFIX: FIRST NA	ME: Jeremiah	MIDDLE INITIAL:	J. LAST NAME	Diaz	
SUFFIX:	RSO JOB TITLE: Corporate R	adiation Safety Officer			
RSO PHONE: 713-328-2321	RSO FAX: 713-328-2163	RSO EMAIL:	jeremiah.diaz@cor	elab.com	
STATES WHERE USE IS AUTHOR	RIZED: 3	0- ALL LISTED S 1- SAME AS STA 2- ALL STATES 3- NON-AGREEM	TATES TE IN ADDRESS IENT-STATES		

AUTHORIZED STATES (USE ONLY IF ABOVE IS ZERO):