PUBLIC
- ☐ Immediate Release
- ☒ Normal Release

NON-PUBLIC
- ☐ A.3 Sensitive-Security Related
- ☐ A.7 Sensitive Internal
- ☐ Other:

Reviewer: RTC Date: 2-2-18

RECEIVED JUL 02 2015

DNMS

ProTechnics
6510 W Sam Houston
PKWY N
Houston, Texas 77041 USA
Tel: 713.328.2320
Fax: 713.328.2163

June 19, 2015

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

RE: NRC license # 42-26928-01

ProTechnics Division of Core Laboratories LP proposes to amend its radioactive material license # 42-26928-01. As per 10 CFR 20.2002, ProTechnics requests approval to dispose of well returns containing small concentrations of radioactive tracer material at Meadowfill landfill, owned and operated by Waste Management, in West Virginia. Meadowfill has been previously approved for the disposal of non-hazardous oil field waste including naturally occurring radioactive material (NORM). This method of disposal will provide the oil and gas industry with a safe, sound, and economical management practice for disposal of such wastes when on site (*in situ)* burial of the material is not a viable option. Waste Management has been contacted regarding the proposed license amendment, and is amenable to the model provided the regulatory agencies approve (letter attached). West Virginia Department of Health and Human Resources has also indicated the strong likelihood of approval should the NRC decide to accept the amendment request (contact Jason Frame, Chief, Radiological Health Program Office of Environmental Health Services/Radiation, 304-356-4303).

ProTechnics injects three radioactive materials during its tracer operations, namely Iridium-192, Scandium-46, and Antimony-124. The longest half-life of these materials is 84 days. ProTechnics materials are not classified as hazardous waste or mixed waste by the U.S. EPA. These tracers are introduced at low concentrations into hydraulic fracturing fluid containing proppant during hydraulic fracturing operations. They provide a small signal above background that enables well operators taking subsequent well log measurements to identify the interval(s) where the proppant and tracers are placed. This allows well operators to increase recoverable reserves by identifying and recovering bypassed pay and providing information for opportunities to optimize well completion processes. Wells that are not producing optimally may require additional wells in the area to generate a revenue point, which tracing can help avoid.

The concentration of radioactive material that is injected into the fracture never exceeds 1000 pCi/g. This, then, would be the maximum concentration of tracer material in any well returns (and is usually much lower, if present at all). ProTechnics conducts tracer operations worldwide, and has radioactive material licenses issued by the Nuclear Regulatory Commission, Texas, Louisiana, Colorado, Utah, Kansas, Alabama, California, Oklahoma, New Mexico, and Pennsylvania.

ProTechnics patented radioactive tracers, termed ZeroWash®, are manufactured in a process that embeds the non-water soluble tracer metal inside the matrix of a high strength ceramic particle. This design is specifically geared to decrease the impact on any environmental system – whether it's topographical, geological, meteorological, or hydrological. As the attached documented testing from Texas A&M University confirms, there is no leaching or wash off of radioactive material into any fluids, including water tables. The ZeroWash® product cannot migrate through the soil and the radioactivity will not contaminate ground water. Thus, the nature of adjacent environmental settings is of no consequence, and there are no deleterious effects on the environment.

ZeroWash® particles are of such a size that they are non-respirable, and pose no inhalation threat. The material cannot be absorbed through the skin or mucous membranes. The concentration levels are so low in well returns that an individual would have to ingest hundreds of pounds of the material to reach an annual limit of intake (ALI). Therefore, internal exposure from the material can be assumed to be negligible to the public.

External exposure from the ZeroWash® material also proves to be minimal to negligible. ProTechnics is currently authorized by the NRC and several Agreement States to dispose of the material through on-site burial (*in situ* decay). In this process, where at least two feet of clean soil is used to cover the material as overburden, ProTechnics has calculated that an individual standing directly over the earthen barrier for 24 hours a day, 365 days a year, with worst case scenarios of geometry, shielding, and isotope, would only receive a yearly dose of 5.56 mrem (0.056 mSv). The calculations and an explanation are attached. Utilizing realistic numbers, and realizing that in a landfill the earthen barrier will be much greater than two feet, it is easy to see that actual dose values to individuals in the area are insignificant, and so external exposure to the public is also negligible.

The need for this requested activity is due to the fact that some locations where tracer operations are conducted do not allow reserve pits to be used to hold well returns, and therefore negate the *in situ* decay option. The trend in the industry is that there will even be less opportunity for on-site burial in the future. Shipping material and disposing of it in Class II disposal wells is an authorized option, but it can be exorbitantly expensive, to the point that it is often not a realistic, viable option. Additionally, the great distances that the material must often be transported to a Class II facility opens a greater possibility of an accident/incident in transit. Waste Management's Meadowfill facility is in close proximity to well sites in the West Virginia area.

The NRC and several Agreement States have already acknowledged the relatively benign nature of the tracer materials, and have allowed for safe on-site burial of the material. Deeper burial of the material at a landfill would only naturally provide greater shielding by an order of magnitude, as well as additional assurances that the tracers would not be prematurely uncovered or handled. Also, transport of the material to a Class II disposal facility from the West Virginia region is already an authorized disposal option; therefore transporting it to Meadowfill, a much closer facility, would only minimize any current risk and exposure to the public.

The State of Texas already allows for the disposal of well returns with tracer materials at Type I Municipal solid waste sites that are willing to accept it (explanatory letter attached). Texas has also recently acknowledged the non-hazardous nature of well returns with tracers by incorporating the ability to dispose of the material by *in situ* decay directly into their regulations (TAC,336.227, attached). The EPA allows for traced well returns to be disposed directly overboard when offshore. The NRC itself (Division of Waste Management, NMSS) has already performed a technical review of the ZeroWash® material prior to allowing *in situ* decay (December 18, 1995), and concluded that there was a "Finding of No Significant Impact (FONSI)" for burial, even with only an earthen barrier of two feet. This was published in the Federal Register, Volume 68, No. 208 (attached).

Procedurally, ProTechnics would be informed of the presence of well returns from a traced well from the well operator (documented in a "Well Site Agreement"). A ProTechnics representative would then survey and sample the flowback, sending the samples to our in-house lab for analysis. Once the tracer presence and concentration level is verified to be <1000 pCi/g, disposal options will be discussed, resulting either in *in situ* decay, or transport to a Class II injection well, or transport to the Waste Management Meadowfill solid waste landfill (once approved). Meadowfill would be informed of the incoming waste prior to shipment, and be required to give their approval before any shipment is initiated.

In summary, allowing for the disposal of well returns with low (<1000 pCi/g) concentration levels of radioactive tracers at Meadowfill solid waste disposal landfill would have no appreciable impact on the environment as the material is non-soluble and decays rapidly. Traced well returns have been buried for disposal for decades with no adverse impact on the environment to date. Exposure to the public, either from internal or external means, has been shown to be negligible.

Diverting some of t, material away from Class II injection wells would be safer and cheaper, and allow for well operators to use technology to optimize production in current wells, and possibly decrease the need for additional wells. The authorization has been in place in Texas for years with no documented incidents. The EPA and the NRC have evaluated ProTechnics' patented ZeroWash® material, and have found it to be benign and unlikely to adversely affect the environment under the conditions presented. ProTechnics, our clients, and the industry in general would benefit from this additional and economically viable option, allowing greater use of technology and certainty regarding acceptable management and disposal of tracer flowback. ProTechnics requests authorization for disposal of traced well returns at Waste Management's Meadowfill solid waste landfill in West Virginia as a condition of license # 42-26928-01.

Should you require additional information, please let us know.

Sincerely,

Will Williams
Corporate Radiation Safety Officer

Meadowfill Landfill

June 17, 2015

Jerry Alberts
Antero Resources Corporation
1615 Wynkoop Street
Denver, CO 80202

RE: Disposal of Tracer Waste Materiel

Dear Mr. Alberts

Waste Management of WV (WMWV) understands that Core Laboratories is seeking to modify their NRC license to allow disposal of Tracer material waste at our Meadowfill landfill location. WMWV supports the concept provided all parties understand WMWV must comply with all existing Solid Waste and TENORM regulations in WV. Once the NRC modifies the License held by Core Laboratories, WMWV will send a letter to the WVDEP and WVHHR to obtain their approval to accept Tracer material waste in conformance with current regulations and permit requirements. Please send me a copy of the modified license when you obtain it so that I may submit it to the WV agencies noted above.

Regards

Sandy DiSalvo

TEXAS ENGINEERING EXPERIMENT STA'

TEXAS A&M UNIVERSITY

COLLEGE STATION TEXAS 77843-3575

11 July 1991

NUCLEAR SCIENCE CENTER
409/845-7551

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,

John L. Krohn
Assistant Director

RECEIVED 13 JUL 1991

JLK/ym

Radioactive Wash Test Results
(PTI-ZW)

	Temp	KCL Water	15% HCL
Washoff	80° F	12/1000 of 1%	17/1000 of 1 %
Washoff	180° F	40/1000 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

The following attachment presents calculations demonstrating possible exposure to an individual standing over a (cylindrical) shaped pit of traced proppant sand. The values that are inputted into the calculations are designed to reflect a worst case scenario situation.

The radius of the flowback geometry is 1.52 meters (5 feet in the model). This was found to generate the greatest possible exposure for a realistic geometry size. Increasing the radius to much larger distances only spreads out the material farther and decreases exposure to the individual. Decreasing the radius will force the material into a deeper cylindrical shape with the bottom material being shielded by the top layers.

The amount of total flowback by weight is 10,431 kg (23,000 pounds in the model). This is a reasonable amount of possible flowback during a complete screen out from a well.

The amount of clean soil overburden (for shielding) at the earthen barrier is assumed to be the minimum – 0.61 meters (2 feet).

The isotope being modeled is Scandium-46, our tracing isotope with the highest energy and longest half-life (83.8 days).

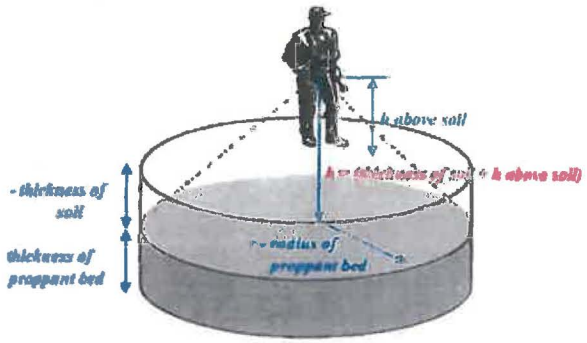
An individual is assumed to be standing over this covered pit 24 hours a day, for 365 days. This is obviously not realistic, but is certainly a worst case scenario. Dose would be to the center of the individual (whole body), 0.914 meters (3 feet) over the pit.

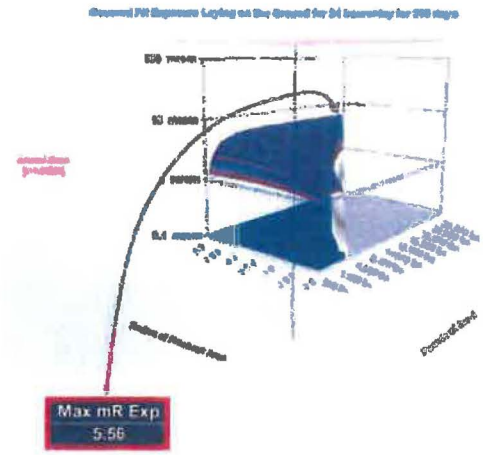
Total dose to the individual with this worst case scenario = 0.0556 mSv (5.56 mrem) in a year

This is well below the regulatory limits for the general public.

Calculation of Exposure from Above a Bed of Proppant Covered with Soil

Covered Pit Exposure Laying on the Ground for 24 hours/day for 365 days





Flowback Geometry

Radius	5	ft
Area	78.53981634	sf

Exposure Period

Days:	365
Hours/Day:	24
Hours:	8760

Flowback Amount

by weight	23000	lbs
by volume	231.6740	cf
by thickness	2.9496	ft

$$I = I_0 \times e^{-\mu t}$$

Shielding from Soil Overburden

I:	Ci/sf	0.00602044
I_0:	Ci/sf	1
μ:	/ft	2.55629784
t:	ft	2

$$C_a = \int_0^t C_v e^{-\mu x} dx = \frac{C_v}{\mu}\left(1 - e^{-\mu t}\right)$$

Effective Surface Activity after Attenuation through Proppant Bed

C_a:	Ci/sf	0.27543601
C_v:	Ci/cf	1
μ:	/ft	3.63052624
t:	ft	2.94876453

$$Dose = \int_0^R \frac{\Gamma \times C_a \times 2\pi\, r\, dr}{r^2 h^2} = \pi \times \Gamma \times C_a \times \ln\frac{R^2 + h^2}{h^2}$$

Dose Rate from Circular Plane

Dose:	Rem/Hr	6.36078E-07		
Γ:	R/Hr/Ci @ 1 ft	12.39893566		
C_a:	Ci/sf	2.35216E-08		
r:	ft	5		
h:	ft	5	*h above soil:*	3 ft
Rem/s:		0.00558326		
mR/Rem:		0.663279842		

$$I = \frac{I_0}{t}\int_0^T 2^{\frac{-t}{z}}\, dt = \frac{I_0}{T} \times \left[\frac{-z}{\left[\ln(2) \times 2^{\left(\frac{T}{z}\right)}\right]} + \frac{z}{\ln(2)}\right]$$

Correction for Half-Life Decay

I:		0.315047778	
I_0:		1	
z:	days	33.5	SC-46 half life
T:	days	365	period of exposure

TEXAS DEPARTMENT OF STATE HEALTH SERVICES

DAVID L. LAKEY, M.D.
COMMISSIONER

P.O. Box 149347
Austin, Texas 78714-9347
1-888-963-7111
TTY: 1-800-735-2989
www.dshs.state.tx.us

DATE: September 6, 2011

ATTN: Texas Landfill Operators

SUBJECT: Disposal of Radioactive Material from Tracer Operations at Type I Municipal Solid Waste Sites.

The purpose of this notice is to communicate to landfill operators that radioactive tracer material in well returns (aka. sandouts, screenouts) from oil and gas wells may be disposed of at a Municipal Type 1 solid waste site provided the company disposing of the material is specifically licensed for this type of disposal. Common tracer materials that may be disposed of this way are iodine-131, iridium-192, scandium-46 and antimony-124. This type of disposal is authorized by the Texas Department of State Health Services (DSHS) and Texas Commission on Environment Quality (TCEQ), 25 Texas Administrative Code (TAC) §289.202(fff)(4) and 30 TAC §336.225(c) respectively.

The activity limits for tracer material disposal are not the same as for Naturally Occurring Radioactive Material (NORM). The 50 microR per hour limit, for example, does not apply to tracer materials. Tracer materials have a less than 120 day half-life, so within a few months to a few years they decay to undetectable levels. The "zero wash" ceramic product containing iridium-192, scandium-46 or antimony-124 is designed to prevent the radioactive material from migrating within the landfill. Due to this additional level of safety, well return waste containing tracer material may be disposed of legally even though radiation is detectable. Regulations limit the amount of radioactive tracer material by volume, but those limits are many times the concentration used in routine tracer operations. The limits can be found in tables in both the DSHS and TCEQ rules (25 TAC §289.202(ggg)(7) and 30 TAC §336.365 (Appendix H).

The landfill operator may request a copy of the DSHS license authorizing disposal under §289.202(fff)(4), along with documentation that the concentration of radioactive tracer material in the well return material is below the activity limits in §289.202(ggg)(7). The waste must otherwise comply with the solid waste site regulations in 30 TAC Chapters 330 and 335. Even if a waste shipment complies with all the rules, the landfill operator retains the right to reject it.

If a landfill receives a shipment that measures more than twice background radiation levels, or greater than 50 mircoR per hour for NORM waste, and there is no documentation that the shipment is in accordance with §289.202(fff)(4), the high reading waste shipment can be reported by calling the DSHS Radiological Emergency Number (512) 458-7460.

If you have any questions regarding this notice, please contact Ray Fleming, Program Coordinator, Industrial Licensing Program at (512) 834-6688 ext. 2206; or by e-mail at Ray.Fleming@dshs.state.tx.us.

Texas Administrative Code

TITLE 30	ENVIRONMENTAL QUALITY
PART 1	TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
CHAPTER 336	RADIOACTIVE SUBSTANCE RULES
SUBCHAPTER C	GENERAL LICENSING REQUIREMENTS
RULE §336.227	**Radioactive Tracers Used in the Exploration, Development or Production of Oil or Gas or Geothermal Resources**

(a) Disposal of radioactive tracer materials used in the exploration, development or production of oil or gas or geothermal resources is exempt from licensing requirements for the disposal of radioactive substances under this chapter if the radioactive tracer materials are disposed of in accordance with this section.

(b) Radioactive tracers are eligible for exemption under this section if:

(1) the possession, transportation, and use of the radioactive tracers are licensed or otherwise authorized by the Texas Department of State Health Services;

(2) the non-water soluble radioactive tracers are in fluids that have been retrieved from a well used in the exploration, development or production of oil or gas or geothermal resources and such well is permitted or otherwise authorized by the Railroad Commission of Texas;

(3) the total concentration of radioactivity for all isotopes disposed does not exceed 1,000 picocuries per gram (pCi/g), and the half-life of each isotope is 120 days or less; and

(4) the radioactive tracers are non-water soluble.

(c) A person may dispose of radioactive tracers that are eligible for exemption under subsection (b) of this section in an on-site disposal pit that is permitted by the Railroad Commission of Texas for the disposal of oil and gas waste and is covered by at least two feet of clean soil.

(d) A person may dispose of radioactive tracers that are eligible for exemption under subsection (b) of this section in a Class II injection well permitted by the Railroad Commission of Texas for the disposal of oil and gas waste if the permit specifically authorizes the disposal of radioactive tracers.

(e) Any person who disposes of radioactive tracers exempted from licensing requirements under this section must maintain records related to the disposal, including method and location of disposal, identity of specific isotopes, estimated volume of the radioactive tracers, and total concentration of radioactivity for the isotopes disposed, and dates of disposal. The executive director may request records related to disposal of tracer materials under this section at any time.

Source Note: The provisions of this §336.227 adopted to be effective July 11, 2013, 38 TexReg 4379

http://www.nrc.gov/NRC/ADAMS/index.html. Any questions with respect to this action should be referred to Tom McLaughlin, Decommissioning Branch, Division of Waste Management, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555–0001.

Telephone: (301) 415–5869. Fax: (301) 415–5398.

Dated at Rockville, Maryland, this 21st day of October 2003.

For the Nuclear Regulatory Commission.

Tom McLaughlin,

Project Manager, Facilities Decommissioning Section, Decommissioning Branch, Division of Waste Management, Office of Nuclear Material Safety and Safeguards.

[FR Doc. 03–27134 Filed 10–27–03; 8:45 am]

BILLING CODE 7590–01–P

NUCLEAR REGULATORY COMMISSION

[Docket No. 030–30249]

Environmental Assessment and 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

I. Introduction

The U.S. Nuclear Regulatory Commission (NRC) is issuing a license amendment for a proposal made by Core Laboratories, Inc. (dba ProTechnics) of Houston, Texas. Core Laboratories requested an amendment to Materials License No. 42–26928–01 to allow an additional disposal alternative pursuant to 10 CFR 20.2002 to inject well returns containing radioactive tracer material into Class II disposal wells that have been approved to accept non-hazardous oil and gas waste by State agencies. An Environmental Assessment (EA) was performed by the NRC staff in support of its review of the license amendment request, in accordance with the requirements of 10 CFR part 51. The conclusion of the EA is a Finding of No Significant Impact (FONSI).

II. Environmental Assessment

Related to the Core Laboratories, Inc. Request for an Alternate Disposal Method to Inject Well-Logging Waste into Class II Disposal Wells.

Summary: The NRC considered a license amendment request for approval for an alternate disposal method for well-logging waste produced under NRC Byproduct Materials License No. 42–26928–01. Core Laboratories, Inc. (dba ProTechnics) requested NRC approval to allow fracturing sand well returns containing residual material to be injected into Class II disposal wells. These Class II wells would have been approved under permits to accept non-hazardous oil and gas waste by State agencies. Approval of this license amendment request is based upon the NRC's review and evaluation of the merits of the licensee's proposal, current alternatives, and waste disposal regulations in 10 CFR part 20. The NRC staff has evaluated the licensee's proposal and has developed an EA in accordance with the requirements of 10 CFR part 51.

1.0 Introduction

Core Laboratories, Inc., is based in Houston, Texas, and conducts well-logging operations with radioactive materials in oil and natural gas fields worldwide. Core Laboratories is licensed to conduct tracer operations where the NRC has jurisdiction and in Agreement States including Louisiana, Texas, Colorado, Utah, California, Oklahoma, and New Mexico. Core Laboratories performs over 3,000 well-logging fracturing jobs a year in the United States using various radioactive tracer materials with half-lives of less than 120 days. In general, Core Laboratories injects three radioactive materials during its tracer operations: Iridium-192, scandium-46, and antimony-124. The longest half-life of these materials is 84 days. Core Laboratories procedures require that 1,000 pounds of sand be mixed with every 0.4 millicuries of tracer material prior to injection into a well.

Core Laboratories is 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). These waste materials are not classified as hazardous or mixed waste by the U.S. Environmental Protection Agency (EPA) regulations. The purpose of the tracer material is to enhance the performance of the oil well fracturing procedures. Using the information provided by the tracer material, the well operator can maximize the production from the well. Approximately 10 percent of the fracturing jobs result in the backflow of injected tracer material to the surface. This phenomena is called sandout or well-logging returns. The amount of the well-logging returns can range from a few gallons (20 pounds) to 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.

Currently, Core Laboratories is allowed to hold radioactive material with a half-life of less than 120 days for decay-in-storage before unrestricted disposal. Under this authorization, the well-logging returns are transported by truck to a storage facility that is distant (sometimes 30 miles or more) from the original tracer injection point. Additionally, the sandout waste may be shipped to an approved waste site for burial. On December 18, 1995, the NRC approved Core Laboratories' generic 10 CFR 20.2002 onsite disposal request for burying radioactive wastes from well-logging sandouts, flowbacks, or any other form into shallow earthen pits at the well site pursuant to 10 CFR 20.2002.

On August 23, 2000, Core Laboratories requested a license amendment to allow fracturing sand well returns to be injected in Class II disposal wells. All the sandout well-logging returns containing tracer radioactive materials would be recovered and contained in Class II disposal wells that met the State's and EPA's regulations. Core Laboratories proposes to dispose of material into Class II 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 not radioactive waste as defined in the EPA regulation 40 CFR 144.3. Class II disposal wells are described in part in EPA regulations under 40 CFR 144.6 as "Wells which inject fluids which are brought to the surface in connection with natural gas storage operations, or conventional oil or natural gas production." Some of the EPA requirements imposed on Class II 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 disposal method for well-logging waste produced as a result of fracturing sand well-logging operations. The licensee seeks approval to allow fracturing sand well returns to be injected into Class II disposal wells that have been approved

under permits to accept non-hazardous oil and gas waste by State agencies. 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 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 the licensee an additional disposal alternative due to the fact that some locations where the tracer operations are conducted do not allow shallow pits to be used for well waste disposals. This proposed action would allow the continued use of tracer materials 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 protection of the public health and safety and the environment.

4.0 Alternative to the Proposed Action

The only alternative to the proposed action of allowing the alternative disposal in Class II disposal wells is no action. The no-action alternative would be to allow the licensee to maintain 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 state approved Class II disposal wells already permitted and in operation where materials are injected below the water table. The depth of Class II disposal wells range from 5,000 to 15,000 feet which is well below usable groundwater. 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 II wells, the waste would not contaminate groundwater and would not migrate from the formation where injected. Because the proposed action will only use pre-existing Class II 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 II disposal wells, potential socioeconomic and environmental impacts are investigated as part of the National Environmental Policy Act process. In general, Class II disposal wells are not located in populated or business areas.

If approved, Core Laboratories' generic 10 CFR 20.2002 waste disposal authorization would contain the following provisions: (1) A requirement to assure that the radioactive concentration of waste would be less than 1,000 picocuries/gram (pCi/g); (2) the half-life of the radioactive material being disposed would be less than 120 days and include only the following tracers: Sodium-24, chromium-51, rubidium-86, iodine-131, xenon-133, scandium-46, zirconium-95, antimony-124, and iridium-192; and (3) Core Laboratories would maintain a written agreement with the Class II 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 general 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 one-tenth of the regulatory annual limit of intake specified in 10 CFR part 20, appendix B. The maximum radiation exposure level, at a distance of 1-foot from a vehicle transporting this waste, 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 1-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. 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 little 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 mR 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 sandout material is injected into a Class II disposal well.

Radioactive material as defined by Department of Transportation regulation 49 CFR 173.403 is material that exceeds a concentration of 2,000 pCi/g. The residual radioactive material concentrations being shipped are below this limit. 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 requires that at least one transport vehicle be used. Procedures would be in place to handle any emergency situation 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 II disposal wells are expected to be insignificant. The NRC staff concluded that the State's and EPA's requirements for permitting the operation of Class II 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 II 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. Core Laboratories' 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. Core Laboratories would continue use of shallow earthen pits, transporting the sandout 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, Core Laboratories would continue to maintain sandout 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 Core Laboratories would continue decay-in-storage before unrestricted disposal or burial in shallow earthen pits. Additionally, the cost of storage facilities and the cost for burial at an approved disposal site are not economical considering the fact that there are no costs associated with disposals at Class II wells.

6.0 Agencies and Persons Consulted

The NRC staff has prepared this EA with input from the Alaska Oil & Gas Conservation Commission (AOGCC) and the Texas Bureau of Radiation Control (TBRC) regarding permitting of Class II disposal wells and Zero-Wash product.

Because the proposed action is entirely within existing Class II 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 EA to the following states for review and comment: Alaska (ML031540273), California (ML031540246), Colorado (ML031540327), Louisiana (ML031540301), New Mexico (ML031540339), Oklahoma (ML031540221), Texas (ML031540332), Utah (ML031540352), and Wyoming (ML031540355). This EA has been revised to reflect the States' input where appropriate.

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 EA in support of the proposed license amendment for approval to allow fracturing sand well returns to be injected in Class II disposal wells that have been approved under permits to accept non-hazardous oil and gas waste by State agencies. On the basis of this EA, the NRC has concluded that the environmental impacts 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 EA was prepared by Louis C. Carson II, Senior Health Physicist, Nuclear Materials Licensing Branch, Division of Nuclear Materials Safety, Region IV, and reviewed by Jack E. Whitten, Chief, Materials Licensing Branch, Division of Nuclear Materials Safety.

9.0 List of References

1. NRC, "Radiological Criteria for License Termination," 10 CFR part 20, subpart E, 62FR39088, July 21, 1997.
2. NRC, "Waste Disposal," 10 CFR part 20, subpart K, 56FR23403, May 21, 1991.
3. NRC, "Consolidated NMSS Decommissioning Guidance," NUREG–1757, Volume 1, September 2002.
4. NRC, "Environmental Review Guidance for Licensing Actions Associated with NMSS Programs," NUREG–1748, September 2003.
5. Alaska Oil & Gas Conservation Commission (AOGCC) and the letter dated January 11, 2002, from the AOGCC to Marathon Oil Company.
6. ProTechnics Division of Core Laboratories Texas Bureau of Radiation Control License No. L03835, Amendment No. 37, expiration date August 31, 2005.
7. Utah Department of Environmental Quality letter to the NRC dated June 30, 2003 (ML032660184).
8. Colorado Department of Health letter to the NRC dated July 1, 2003 (ML031900577).
9. Texas Department of Health letter to the NRC dated July 17, 2003 (ML032060480).

III. Finding of No Significant Impact

Pursuant to the National Environmental Policy Act of 1969 (NEPA) and the Commission's regulations in 10 CFR part 51, the Commission has determined that there will not be a significant effect on the quality of the environment resulting from the approval of Core Laboratories' requested amendment for an additional disposal alternative pursuant to 10 CFR 20.2002 to inject well returns containing radioactive tracer material into Class II disposal wells that have been approved to accept non-hazardous oil and gas waste by State agencies. Accordingly, the preparation of an Environmental Impact Statement is not required for the proposed amendment to Materials License No. 42–26928–01, which would add the alternative disposal method to the license. This determination is based on the foregoing EA performed in accordance with the procedures and criteria in 10 CFR part 51.

IV. Further Information

The licensee's request for the proposed action (ADAMS Accession No: ML003758270) and the NRC's complete Environmental Assessment (ADAMS Accession No.: ML032680636), and other related documents to this proposed action are available for public inspection and copying for a fee at NRC's Public Document Room at NRC Headquarters, One White Flint North, 11555 Rockville Pike, Rockville, Maryland 20852. These documents, along with most others referenced in the EA, are available electronically for public review in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at *http://www.nrc.gov/reading-rm/adams.html* (the Public Electronic Reading Room).

Any questions with respect to this action should be referred to Louis C. Carson II, Nuclear Materials Licensing Branch, Division of Nuclear Materials Safety, U.S. Nuclear Regulatory Commission, Region IV, Arlington, Texas 76011–4005. Telephone: (817) 860–8221.

Dated at Arlington, Texas, this 20th day of October 2003.

For the Nuclear Regulatory Commission.

Jack E. Whitten,

Chief, Nuclear Materials Licensing Branch, Division of Nuclear Materials Safety, Region IV.

[FR Doc. 03–27132 Filed 10–27–03; 8:45 am]

BILLING CODE 7590–01–P

NUCLEAR REGULATORY COMMISSION

[Docket No. 030–33944]

Notice of Finding of No Significant Impact and Availability of Environmental Assessment for License Amendment of Materials License No. 37–30247–01, White Eagle Toxicology Laboratories, Inc.

AGENCY: Nuclear Regulatory Commission.

ACTION: Notice of availability of environmental assessment and finding of no significant impact.

FOR FURTHER INFORMATION CONTACT: Kathy Dolce Modes, Nuclear Materials Safety Branch 2, Division of Nuclear Materials Safety, Region I, 475 Allendale Road, King of Prussia, Pennsylvania, 19406; telephone (610) 337–5251; fax (610) 337–5269; or by e-mail: *KAD@nrc.gov.*

SUPPLEMENTARY INFORMATION:

I. Introduction

The U.S. Nuclear Regulatory Commission (NRC) is considering the issuance of a license amendment to

Core Lab
RESERVOIR OPTIMIZATION

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