UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-4005

July 9, 2004

Mr. Tom Hampton, President
Core Laboratories, Inc.
ProTechnics Division
6316 Windfern Road, Room 310
Houston, Texas 77040

Dear Mr. Hampton:

This letter is in response to your April 26, 2004, letter where Core Laboratories, Inc., agreed to suspend using the alternative method of disposal that was approved on November 4, 2003, in Amendment No. 30 to your Nuclear Regulatory Commission (NRC) byproduct material license. As stated in your letter, this suspension would remain in place pending the NRC's resolution of specific questions raised by the Environmental Protection Agency (EPA). The intent of this NRC approved alternative method was to authorize Core Laboratories' to dispose of byproduct waste material resulting from well logging operations into EPA designated Class II disposal wells. The NRC has resolved the questions raised by the EPA regarding the NRC's approval of Core Laboratories alternative disposal option. The purpose of this letter is to communicate to you the relevant geohydrological considerations which were discussed.

The EPA's regulations do not prohibit the fracturing of the injection zone for Class II disposal wells. The EPA's regulations do require that injection activities not cause fractures in the confining zone. The mechanical injection of well logging slurries containing sand, radioactive grass beads, and residual fracture fluids into a traditional Class II waste disposal well would require that the injection zone be fractured. It should be noted that when using this injection process it is difficult to allow fracturing of the injection zone while at the same time assuring that the confining zone would not be fractured. For this reason, most states in the contiguous 48 states do not allow this practice unless there are special reasons. The EPA staff suggested that Core Laboratories' staff review 40 CFR 146.23 and Underground Injection Control (UIC) guidance document #19, "Guidance for State Submissions under Section 1425 of the Safe Drinking Water Act Ground Water Program." For additional UIC information, please refer to the EPA's website at http://www.epa.gov/safewater/uic/guidance/guid19.pdf. Also, Core Laboratories is reminded that it is obligated to have the appropriate permits or agreements in place prior to disposing byproduct material resulting from flow-backs or sand-outs from well logging activities into any EPA designated Class II disposal well.

We appreciate your cooperation in restricting your use of this alternate disposal option until the NRC had sufficient time to address the EPA's questions. We believe that the information provided in this letter, in conjunction with the letter to the EPA (Enclosure 1), addresses all issues. Accordingly, your commitment to suspend disposal of byproduct waste material resulting from well logging operations into the EPA designated Class II disposal wells is no longer needed.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, and your response (if any) will be made available electronically for public inspection 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).

If you have questions or require clarification on any of the information stated above, contact Jack Whitten1 at (817) 860-8197 or me at (817) 860-8106.

Sincerely,

/RA/

Elmo E. Collins, Director
Division of Nuclear Materials Safety

Docket No.: 030-30429
License No.: 42-26928-01

Enclosure: As stated

bcc w/enclosure (via ADAMS distrib):
BSMallet
TPGywnn
EECollins
MASatorius
CLCain
KDSmith
SWMoore
WAMaier
SCFlanders
MESchwartz
KEGardin
FCDB
RIV File (5th Floor)

ADAMS: ☒Yes ☐No Initials: lcl

☒Publicly Available ☐Non-Publicly Available ☐Sensitive ☒Non-Sensitive

DOCUMENT NAME: s:\dnms\!nmlb\jew1\epa-nrc-response-Hampton Final: s:\dnms\ltrs-memos\

RIV:DNMS:NMLB	C:NMLB	D:DNMS
*LCCarsonII	JEWhitten	EECollins
/RA/	***/RA/***	***/RA/***
06/24/04	06/24/04	07/02/04

*Previous concurrence OFFICIAL RECORD COPY T=Telephone E=E-mail F=Fax

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-4005

July 9, 2004

Ms. Joan Harrigan-Farrelly, Chief
Prevention Branch
Environmental Protection Agency
Drinking Water Protection Division
Office of Ground Water and Drinking Water
Washington, D.C. 20460

SUBJECT: EPA's LETTER DATED MARCH 31, 2004, CONCERNING THE NRC'S *FEDERAL REGISTER* PUBLICATION OF THE ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT (EA-FONSI) FOR CORE LABORATORIES, INC., HOUSTON, TEXAS

Dear Ms. Harrigan-Farrelly:

The Nuclear Regulatory Commission (NRC) staff has reviewed your letter dated March 31, 2004, which raised specific concerns about the NRC EA-FONSI published in the *Federal Register* (68 FR 61472, October 28, 2003) regarding an amendment request from Core Laboratories, Inc.'s (Core)(NRC License No. 42-26928-01). On April 29, 2004, at our request, we had a conference call with you and members of your staff to discuss these concerns. As a result of the April 29 discussion, and at your staff's request, we provided your staff with electronic copies of all the documents used by NRC to produce both the Safety & Technical Assessment and Environmental Assessment (EA). These documents formed the basis for NRC's decision to grant Core's amendment request. NRC's Safety & Technical Assessment concluded that from a radiological perspective, it was safe for Core to use Class II injection wells for the disposal of well-logging flowback sands containing residual tracer material contaminated with licensed byproduct material. The environmental review conducted by the staff, and documented in the EA, examined both the radiological and nonradiological environmental impacts of the proposed licensing action and resulted in a finding of no significant impact (FONSI). On May 18, 2004, Mr. Louis Carson of my staff and I held discussions with Mr. Mario Salazar of your staff and Mr. Paul Osborne of the EPA's Region VIII office. The purpose of these informal discussions was to examine and arrive at a course of action to resolve the issues EPA had raised.

It is our understanding that the EPA's main concerns involved two specific areas:
(1) **administrative protocol** and **(2) geohydrology** issues that are specific to the EPA's Underground Injection Control (UIC) program and Underground Sources of Drinking Water (USDW) program. The following is a summary of EPA's specific concerns as we understand them:

1. **Administrative Protocol:** Although the NRC licensing staff did communicate with the EPA staff informally, the NRC did not formally include the EPA in the Draft EA-FONSI

review process as it did with other stakeholders. Consequently, the EPA did not have the opportunity to review the draft EA-FONSI and provide comments. In our April 29 discussion with EPA representatives, they indicated that EPA would have provided comments to the NRC emphasizing to *Federal Register* readers the current issues the EPA faces with Class II Disposal Well operations.

2. **Geohydrology:** Granting Core permission to allow its oil and gas industry clients (Class II Well permit holders) to dispose of flowback material containing residual byproduct material could potentially increase risk to sources of ground water. The EPA's regulation 40 CFR 146.23 requires, in part, that Class II well operators must ensure that specified injection pressures are not exceeded during well operations. The EPA's staff assessment indicates that as a result of the injection of flowback materials into old or existing wells physical fractures could be created or existing fractures propagated. It is the EPA's contention that these fractures or propagation could create fractures in a confining zone near a USDW. The EPA is also concerned that the injection pressures that may be necessary to dispose of oil and gas flowback material containing residual byproduct material could affect the Class II wells in such a manner as to introduce a potential risk to USDW supplies.

After providing the EPA with the information on which NRC based its decision, and entering into extensive discussion with the EPA about EPA's specific concerns, the NRC staff has concluded that the EPA does not have any radiological safety concerns associated with the alternate disposal method approved by the NRC for Core to dispose of tracer material contaminated with licensed byproduct materials into Class II disposal wells. However, we want to ensure that EPA is also aware that Core does not operate Class II disposal wells, nor does Core's NRC license authorize such operations.

In order to promote a more productive collaborative effort between the EPA and the NRC, Region IV will pursue the following initiatives:

- Region IV will discuss with the NRC's Office of Nuclear Material Safety and Safeguards additional information addressing the disposal of tracer materials in Class II wells, that should be included in NUREG-1556, Vol. 14, "Program-Specific Guidance About Well Logging, Tracer, and Field Flood Study Licenses," when this document is revised. Region IV will also discuss the need to revise NUREG-1748 "Environmental Review Guidance for Licensing Actions Associated with NMSS Programs," with the Division of Waste Management and Environmental Protection. The proposed revisions promulgated by Region IV will request that all NRC materials licensing actions affecting activities associated with the EPA's UIC program will be submitted to the EPA for formal review and comment.

- Region IV will issue the attached letter (Enclosure 1) to Core explaining the EPA's geohydrological concerns for Class II wells used for disposal and to clarify the importance of complying with License Condition 18 of NRC License No. 42-26928-01. Section (c) of this license condition requires, in part, that the Class II disposal well must be permitted by the State, Territory, or Federal jurisdiction to accept nonhazardous oil

and gas waste. License Condition 18 also requires Core to ensure that their clients' Class II disposal well permits allow Core to dispose of nonhazardous oil and gas waste, regardless of whether the job site is in NRC or Agreement State jurisdiction.

- Region IV will issue the enclosed letter that includes the information the EPA provided to the NRC. This information is included in the NRC's letter to Core in an effort to ensure that Core is fully cognizant of the fact that the final decision related to the underground injection of any fluids can only be made by the relevant UIC program in the state in question. The letter states that the authority for the development and implementation of the UIC program is granted only to EPA and the States in Part C of the Safe Drinking Water Act. That authority is codified in Title 40 Parts 144, 145, 146,147 and 148. The letter will also include Information on the UIC program in each State, indicating that it can be found in Title 40, Part 147 and from the internet at EPA's Web site at http://www.epa.gov/safewater/uic/states.html.

We appreciate the opportunity to work collaboratively with a sister Federal agency. We believe that the communication between our two agencies regarding this issue has enhanced the NRC's understanding of the EPA's UIC programs and the EPA's understanding of NRC's license amendment process. Thank you for you and your staff's assistance and willingness to work to address the issues surrounding the alternate disposal option approved by NRC for the disposal of byproduct material into Class II disposal wells. We believe that the information provided in this letter, in conjunction with the letter to Core, closes out the EPA's specific concerns.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, and your response (if any) will be made available electronically for public inspection 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).

If you have questions or require clarification on any of the information stated above, you may contact me at (817) 860-8197.

Sincerely,

/RA/

Jack E. Whitten, Chief
Nuclear Materials Licensing Branch

Enclosure: As stated

bcc w/enclosure (via ADAMS distrib):
BSMallet
TPGywnn
EECollins
MASatorius
CLCain
KDSmith
SWMoore
WAMaier
SCFlanders
MESchwartz
KEGardin
FCDB
RIV File (5th Floor)

ADAMS: ☒Yes ☐No Initials: ___

☒Publicly Available ☐Non-Publicly Available ☐Sensitive ☒Non-Sensitive

DOCUMENT NAME:s:\dnms\!nmlb\jew1\epa-nrc-response-Joan Harrigan Final: s:\dnms\ltrs-memos\

RIV:DNMS:NMLB	C:NMLB	RC	D:DNMS
LCCarsonII	JEWhitten	KDSmith	EECollins
/RA/	***/RA/***	***/RA/***	***/RA/***
06/24/04	06/24/04	06/24/04	07/07/04

C:INMS/RGB	C:DWM/EPAB	SLO	OGC
SWMoore	SCFlanders	WAMaier	MESchwartz
/RA JEWhitten for/	***/RA JEWhitten for/***	***/RA JEWhitten for/***	***/RA JEWhitten for via e/***
06/24/04	06/24/04	06/24/04	07/08/04

OFFICIAL RECORD COPY T=Telephone E=E-mail F=Fax

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-4005

July 9, 2004

Mr. Tom Hampton, President
Core Laboratories, Inc.
ProTechnics Division
6316 Windfern Road, Room 310
Houston, Texas 77040

Dear Mr. Hampton:

This letter is in response to your April 26, 2004, letter where Core Laboratories, Inc., agreed to suspend using the alternative method of disposal that was approved on November 4, 2003, in Amendment No. 30 to your Nuclear Regulatory Commission (NRC) byproduct material license. As stated in your letter, this suspension would remain in place pending the NRC's resolution of specific questions raised by the Environmental Protection Agency (EPA). The intent of this NRC approved alternative method was to authorize Core Laboratories' to dispose of byproduct waste material resulting from well logging operations into EPA designated Class II disposal wells. The NRC has resolved the questions raised by the EPA regarding the NRC's approval of Core Laboratories alternative disposal option. The purpose of this letter is to communicate to you the relevant geohydrological considerations which were discussed.

The EPA's regulations do not prohibit the fracturing of the injection zone for Class II disposal wells. The EPA's regulations do require that injection activities not cause fractures in the confining zone. The mechanical injection of well logging slurries containing sand, radioactive grass beads, and residual fracture fluids into a traditional Class II waste disposal well would require that the injection zone be fractured. It should be noted that when using this injection process it is difficult to allow fracturing of the injection zone while at the same time assuring that the confining zone would not be fractured. For this reason, most states in the contiguous 48 states do not allow this practice unless there are special reasons. The EPA staff suggested that Core Laboratories' staff review 40 CFR 146.23 and Underground Injection Control (UIC) guidance document #19, "Guidance for State Submissions under Section 1425 of the Safe Drinking Water Act Ground Water Program." For additional UIC information, please refer to the EPA's website at http://www.epa.gov/safewater/uic/guidance/guid19.pdf. Also, Core Laboratories is reminded that it is obligated to have the appropriate permits or agreements in place prior to disposing byproduct material resulting from flow-backs or sand-outs from well logging activities into any EPA designated Class II disposal well.

We appreciate your cooperation in restricting your use of this alternate disposal option until the NRC had sufficient time to address the EPA's questions. We believe that the information provided in this letter, in conjunction with the letter to the EPA (Enclosure 1), addresses all

issues. Accordingly, your commitment to suspend disposal of byproduct waste material resulting from well logging operations into the EPA designated Class II disposal wells is no longer needed.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, and your response (if any) will be made available electronically for public inspection 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).

If you have questions or require clarification on any of the information stated above, contact Jack Whitten1 at (817) 860-8197 or me at (817) 860-8106.

Sincerely,

/RA/

Elmo E. Collins, Director
Division of Nuclear Materials Safety

Docket No.: 030-30429
License No.: 42-26928-01

Enclosure: As stated

bcc w/enclosure (via ADAMS distrib):
BSMallet
TPGywnn
EECollins
MASatorius
CLCain
KDSmith
SWMoore
WAMaier
SCFlanders
MESchwartz
KEGardin
FCDB
RIV File (5th Floor)

ADAMS: ☒Yes ☐No Initials: _lcl_

☒Publicly Available ☐Non-Publicly Available ☐Sensitive ☒Non-Sensitive

DOCUMENT NAME: s:\dnms\!nmlb\jew1\epa-nrc-response-Hampton Final: s:\dnms\ltrs-memos\

RIV:DNMS:NMLB	C:NMLB	D:DNMS
*LCCarsonII	JEWhitten	EECollins
/RA/	***/RA/***	***/RA/***
06/24/04	06/24/04	07/02/04

*Previous concurrence OFFICIAL RECORD COPY T=Telephone E=E-mail F=Fax