



MEMORANDUM

July 20, 2015

To: House Committee on Science, Space and Technology
Attention: Aaron Weston

From: Todd Garvey, Legislative Attorney

Subject: **NRC Licensing of Proposed DOE Nuclear Facilities**

This memorandum is provided in response to your request for a discussion of the Department of Energy's (DOE) authority to construct and operate nuclear facilities for research and development purposes without approval from the Nuclear Regulatory Commission (NRC). Specifically, you asked whether the construction and operation of two types of facilities would require an NRC license: (1) a research oriented, non-power reactor at a DOE site operated by a private entity pursuant to an agreement with DOE; and (2) a DOE, or DOE-contractor operated nuclear reactor user test facility for use by private parties to facilitate research and development. It would appear that neither of the proposed facilities would require an NRC license, so long as they are operated for research or experimental purposes (rather than commercial purposes), are constructed and operated at a DOE-owned or controlled site, and any participation by a private entity is pursuant to an adequate contractual arrangement with the DOE.

In the case that these facilities do not require an NRC license, you also asked whether the NRC would nonetheless be permitted to provide the DOE with technical assistance in ensuring their safe construction and operation. Both law and practice would appear to support NRC's ability to provide the DOE with such assistance.

Discussion of General Principles Governing NRC Licensing of DOE Nuclear Facilities

The Atomic Energy Act (AEA) established the Atomic Energy Commission (AEC) and assigned the agency the dual tasks of encouraging the growth and development of nuclear energy while ensuring the public's health and safety through regulation and licensing.¹ In 1974, the Energy Reorganization Act (ERA) abolished the AEC and divided the agency's authorities between two newly created agencies.² Developmental and promotional functions were assigned to the Energy Research and Development

¹ P.L. 83-703, 42 U.S.C. §§ 2011 et seq.

² P.L. 93-438, 42 U.S.C. §§ 5801 et seq.

Administration (which was incorporated, along with its authorities, into the DOE in 1977³) while licensing and regulatory functions were delegated to the Nuclear Regulatory Commission.⁴

Under the law, the DOE is charged with “encouraging and conducting research and development... related to the development and use of energy from . . . nuclear . . . sources.”⁵ The NRC, on the other hand, licenses the construction and operation of various types of nuclear facilities, as well as the use and possession of different forms of nuclear material and nuclear waste.⁶ Nuclear reactors, for example, are defined as “utilization facilities”⁷ under the AEA, and are licensed by the NRC either for commercial purposes or as a facility “useful in the conduct of research and development.”⁸ Regardless of the intended purposes, 42 U.S.C. § 2131 makes it unlawful for any person to manufacture, produce, acquire, possess, or use a utilization facility without first obtaining a license from the NRC.

However, consistent with Congress’s intent to separate research and developmental from regulatory and licensing functions, most DOE nuclear facilities and programs are exempt from NRC licensing and regulation. Under 42 U.S.C. § 2140, no NRC license is required for “the construction or operation of facilities *under contract with and for the account of the [DOE]*.”⁹ In addition to this broad exemption for DOE facilities, contractors performing work for the DOE are also generally exempt from obtaining an NRC license for the use of various types of nuclear material.¹⁰ The general rule, therefore, is that the DOE ensures the safety of its own developmental nuclear activities through self-regulation, rather than through NRC licensing.¹¹ As clarified in the legislative history of the ERA, Congress saw ERDA, and later DOE

³ Department of Energy Organization Act, P.L. 95-91, 42 U.S.C. § 7151.

⁴ 42 U.S.C. § 5801 (“The Congress finds that it is in the public interest that the licensing and related regulatory functions of the Atomic Energy Commission be separated from the performance of the other functions of the [NRC].”)

⁵ 42 U.S.C. § 5813(2).

⁶ See, e.g., 42 U.S.C. § 5813; 42 U.S.C. § 5841; 10 C.F.R. Parts 31, 40, 50 and 70.

⁷ 42 U.S.C. § 2014 (“The term ‘utilization facility’ means (1) any equipment or device, except an atomic weapon, determined by rule of the Commission to be capable of making use of special nuclear material in such quantity as to be of significance to the common defense and security, or in such manner as to affect the health and safety of the public, or peculiarly adapted for making use of atomic energy in such quantity as to be of significance to the common defense and security, or in such manner as to affect the health and safety of the public; or (2) any important component part especially designed for such equipment or device as determined by the Commission. “); 10 C.F.R. Part 50.

⁸ 42 U.S.C. § 2133; 42 U.S.C. § 2134. Utilization facilities may also be licensed for medical or industrial purposes.

⁹ 42 U.S.C. § 2140(a):

Nothing in this subchapter shall be deemed—

(a) to require a license for (1) the processing, fabricating, or refining of special nuclear material, or the separation of special nuclear material, or the separation of special nuclear material from other substances, under contract with and for the account of the Commission; or (2) the construction or operation of facilities under contract with and for the account of the Commission.

“Subchapter” would appear to refer to Chapter 10 of the AEA, which provided the AEC, and now the NRC, with the authority to issue atomic energy licenses. Although the provision’s use of “Commission” originally referred to the AEC, that language would appear to also apply to DOE. See, *Waste Control Specialists, LLC v. United States Department of Energy*, 1997 U.D. dist. LEXIS 19717 (N.D. Tx. 1997) (“The Atomic Energy Commission was abolished in 1974 and its functions were transferred to the NRC and the [ERDA]. In 1977, Congress terminated the Energy Research and Development Administration and transferred its functions to the newly-created DOE. As a result, the reference to “Commission” in Section 110a(2) of the AEA must be read to refer to the DOE.”).

¹⁰ 10 C.F.R. § 30.12 (byproduct material); 10 C.F.R. § 40.11 (source material); 10 C.F.R. § 70.11 (special nuclear material).

¹¹ The U.S. Court of Appeals for the District of Columbia Circuit has noted that there is a “general exemption of ERDA [now DOE] programs from NRC licensing authority.” See, *Natural Resources Defense Council, Inc. v. United States Nuclear Regulatory Commission*, 606 F.2d 1261, 1266 (D.C. Cir. 1979) (“Congress gave ERDA [now DOE] responsibility for insuring that its programs are environmentally sound and not adverse to public health and safety.”). 42 U.S.C. § 5843(c) (“Nothing in this section shall be construed to limit in any way the functions of the [DOE] relating to the safe operation of all facilities resulting (continued...)”).

self-regulation, as “especially imperative in the noncommercial nuclear R & D [research and development] area because the NRC will have no licensing jurisdiction over such [] nuclear activities.”¹²

The NRC has further clarified this statutory framework through regulation.¹³ 10 C.F.R. § 50.11, articulates two applicable scenarios in which the operation of a DOE utilization facility does not require a NRC license:

(i) The construction or operation of a production or utilization facility for the Department at a United States government-owned or controlled site...Provided, that such activities are conducted by a prime contractor of the Department under a prime contract with the Department.

(ii) The construction or operation of a production or utilization facility by a prime contractor or subcontractor of the Commission or the Department under his prime contract or subcontract when the Commission determines that the exemption of the prime contractor or subcontractor is authorized by law; and that, under the terms of the contract or subcontract, there is adequate assurance that the work thereunder can be accomplished without undue risk to the public health and safety.¹⁴

Although DOE “facilities”—including utilization facilities such as nuclear reactors—are generally exempt from NRC licensing, a number of statutory provisions nevertheless provide the NRC with authority to regulate and license *specific* DOE activities.¹⁵ One potentially applicable provision is found in 42 U.S.C. § 5842.¹⁶ It provides that notwithstanding the general exemption from NRC licensing for DOE facilities established in 42 U.S.C. § 2140, the NRC “shall... have licensing and related regulatory authority” over “*demonstration* nuclear reactors...when operated as part of the power generation facilities of an electric utility system, or when operated in any other manner for the purpose of demonstrating the suitability for commercial application of such a reactor.”¹⁷ The conference report associated with the ERA

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from all activities within the jurisdiction of the [DOE] pursuant to this chapter.”) Congress has also given the Defense Nuclear Facilities Safety Board limited safety authority over DOE defense nuclear facilities.

¹² S. Rep. No. 93-980 at 30.

¹³ The NRC’s interpretation of 42 U.S.C. §§ 5842 and 2140 would likely be accorded deference by a reviewing court. See, *Waste Control Specialists, LLC v. United States Department of Energy*, 141 F.3d 564, 568 n. 20 (“To the extent that the statute is ambiguous on the licensing requirements, these regulations are entitled to deference under [*Chevron v. NRDC*, 467 U.S. 837 (1984)].”) (reviewing 10 C.F.R. § 30.12).

¹⁴ 10 C.F.R. § 50.11. In addition, 10 C.F.R. § 50.12 provides that the NRC may “upon application by any interested person or upon its own initiative, grant exemptions from the requirements of the regulations of this part, which are—(1) Authorized by law, will not present an undue risk to the public health and safety, and are consistent with the common defense and security...” Such an exemption requires certain “special circumstances” to be present.

¹⁵ Many of these exceptions relate to the storage of nuclear waste. See e.g., 42 U.S.C. § 10134 (requiring an NRC construction authorization for the DOE’s permanent repository for the storage of nuclear waste). See also, U.S. Gov’t Accountability Office, GAO-09-61, *Nuclear Safety: Department of Energy Needs to Strengthen Its Independent Oversight of Nuclear Facilities and Operations* 66-68 (2008).

¹⁶ 10 C.F.R. § 50.11 notes, for example, that its exemption applies only so long as the facility is not covered by 42 U.S.C. § 5842, i.e. it is not a “*demonstration* nuclear reactor...operated as part of the power generation facilities of an electric utility system, or ... for the purpose of demonstrating the suitability for commercial application of such a reactor.”

¹⁷ 42 U.S.C. § 5842 (emphasis added):

Notwithstanding the exclusions provided for in section 110a. [42 U.S.C. § 2140 (a)] or any other provisions of the Atomic Energy Act of 1954, as amended, the Nuclear Regulatory Commission shall, except as otherwise specifically provided by section 110b of the Atomic Energy Act of 1954, as amended, or other law, have licensing and related regulatory authority pursuant to chapters 6, 7, 8, and 10 of the Atomic Energy Act of 1954, as amended, as to the following facilities of the Administration:

(2) Other demonstration nuclear reactors—except those in existence on the effective date of this chapter—when operated as part of the power generation facilities of an electric utility system, or when operated in any

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provides insight into what types of DOE reactors Congress intended the NRC to license. The conference report suggests that the grant of authority to the NRC under 42 U.S.C. § 5842:

does not apply to facilities preceding the demonstration phase. Only demonstration reactors would be licensed under [42 U.S.C. § 5842]...They represent the last stage in development of given reactors and are intended to demonstrate practical value for industrial or commercial applications...Reactors under development prior to the demonstration stage would not be subject to licensing such research and development reactors usually are characterized as experimental, research, and test reactors. These reactors are distinguishable from demonstration reactors because their purpose is to develop or test reactor concepts, or the safety and workability of systems or components individually or as part of the overall reactor system.¹⁸

In light of this language, it does not appear that either the proposed research reactor or proposed user test facility would be considered a demonstration reactor under this provision. You have described each of these envisioned facilities as purely research oriented, constructed for the purpose of developing new reactor technologies rather than to demonstrate immediate commercial applications. The proposed facilities may, therefore, be more aptly categorized as a pre-demonstration phase. However, it should be noted that were the proposed facilities intended to “demonstrate practical value for industrial or commercial applications,” or be used “in any other manner for the purpose of demonstrating the suitability for commercial application...,” then NRC licensing jurisdiction could be triggered.

To summarize, the discussed statutory and regulatory provisions would appear to suggest that a private entity is authorized to operate a research or experimental reactor under an agreement with the DOE without first obtaining a license from the NRC. This authority, however, is subject to two important limitations. First, pursuant to NRC regulations, the entity operating the reactor must be a “prime contractor of the [DOE] under a prime contract with the [DOE].”¹⁹ “Prime contractor” is not defined under the AEA or the ERA. Second, the operation of the reactor must either be at a government-owned or controlled site, or be determined by the NRC to be “authorized by law” under contractual terms that provide “adequate assurance” that the reactor can be operated “without undue risk to the public health and safety.”²⁰ A private entity operating a facility on private property and free from DOE oversight and control would not appear to fall within the NRC licensing exemption.

Application of General Principles

You have asked whether a private party, under agreement with DOE, may construct and operate a research oriented, non-power reactor at a DOE facility without obtaining an NRC license. Because the proposed reactor would be operated at a DOE facility—and assuming the reactor is not a “demonstration reactor”—such a proposed arrangement would appear to be exempt from NRC licensing so long as the entity that operates the reactor does so pursuant to a “prime contract” with the DOE.²¹ You have previously suggested that the agreement between the DOE and the private entity may be in the form of a Cooperative

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other manner for the purpose of demonstrating the suitability for commercial application of such a reactor.

NRC’s authority to license utilization facilities is found in Chapter 10 of the AEA. The four other specifically identified facilities in 42 U.S.C. § 5842 do not appear to be applicable to the immediate analysis.

¹⁸ S. Rep. No. 93-1252 at 33-34.

¹⁹ 10 C.F.R. § 50.11. The exemption under subsection (ii) also applies to subcontractors.

²⁰ 10 C.F.R. § 50.11(b)(2).

²¹ 10 C.F.R. § 50.11(b)(2).

Research and Development Agreement (CRADA). Whether this type of agreement satisfies the standard established in 10 C.F.R. §50.11 may depend upon how the term “prime contract” is construed for purposes of this provision. This term is not defined in DOE regulations, nor does its meaning appear to be addressed in informal agency interpretations or guidance. Absent such interpretative guidance, an argument could be made that the term “prime contract” is to be construed in light of its plain meaning—that is, as a legally binding agreement between the DOE and a contractor (i.e., the prime contractor).²² Under this interpretation, a CRADA could potentially be seen to constitute a “prime contract” insofar as it is a legally binding agreement between DOE and a contractor.²³ On the other hand, a CRADA might not be seen to suffice if the term prime contract were to be construed as referring to a “procurement contract,” or a contract by which an agency acquires supplies or services for its own direct use or benefit.²⁴ The Federal Grant and Cooperative Agreement Act (“Grant Act,” P.L. 95-224) expressly distinguished between procurement contracts and cooperative agreements by specifying that the former is to be used when the principal purpose of an agreement is to “acquire property or services for the direct benefit or use of the United States Government,” while the latter is to be used when the principal purpose is to “transfer a thing of value to the State, local government, or other recipient to carry out a public purpose of support or stimulation authorized by a law of the United States.”²⁵

In addition, you noted that the operation of the proposed reactor by the private entity may include the use or testing of certain nuclear materials. DOE prime contractors are generally exempt from the requirement to obtain an NRC license for the use of source and special nuclear material.²⁶ So long as the use of the material is conducted pursuant to a “prime contract...for the performance of work for the Department at a United States Government-owned or controlled site,” and is not at a facility covered by 42 U.S.C. § 5842, then it would appear that no NRC license is required for that type of activity.

You also asked whether a NRC license would be necessary for DOE to operate a nuclear reactor user testing facility for use by private parties to facilitate research and development. The same basic principles of DOE self-regulation would likely apply to this type of proposed facility. So long as the facility is constructed and operated “under contract with and for the account of the [DOE],” it would not appear to require an NRC license.²⁷ The articulated non-commercial, non-power, research and development

²² Ralph C. Nash, Jr., Steve L. Schooner, Karen R. O’Brien-DeBakey, and Vernon J. Edwards, *The Government Contracts Reference Book: A Comprehensive Guide to the Language of Procurement* (3d ed. 2007), at pg. 446 (defining a prime contract as a “contract entered into directly between the government and contractor ... ‘Prime’ is used to distinguish that contract from any subcontract entered into between the prime contractor and a supplier or vendor called a subcontractor, or between such a subcontractor and another, lower-level subcontractor. ... There is privity of contract [i.e., a direct contractual relationship] between the government and prime contractors, but not between the government and subcontractors.”); BLACK’S LAW DICTIONARY 365 (9th ed. 2009) (defining “contract” as “[a]n agreement between two or more parties creating obligations that are enforceable or otherwise recognizable at law”); Restatement (Second) of Contracts §1 cmt. a (1979) (“[C]ontract’ [is] ... sometimes used as a synonym for ‘agreement’”); *Id.* §3 cmt. a (“[A]greement has in some respects a wider meaning than contract, bargain, or promise. ... The word ‘agreement’ contains no implication that legal consequences are or are not produced.”).

²³ For an agreement to be legally binding, there generally must have been an offer, an acceptance, and “consideration,” or a “performance or return promise that is the inducement to a contract because it is sought by the promisor in exchange for his promise and is given by the promisee in exchange for that promise.” *Government Contracts Reference Book* at 122.

²⁴ Subsection 8701(4) of Title 41 of the United States Code does define a “prime contract” as a “contract or contractual action entered into by the Federal Government to obtain supplies, materials, equipment, or services of any kind.” However, this definition is expressly said to apply to the particular chapter of Title 41 in which it appears. This chapter addresses kickbacks, and it is unclear to what extent this definition should be applied in other contracts.

²⁵ 31 U.S.C. §6303 (using procurement contracts); 31 U.S.C. §6305 (using cooperative agreements).

²⁶ 10 C.F.R. § 40.11 (source material); 10 C.F.R. § 70.11 (special nuclear material).

²⁷ 42 U.S.C. § 2140.

application of the facility would further suggest that such a facility would remain under DOE's regulatory authority. It does not appear that there are any specific statutory provisions that would override the general presumption of DOE self-regulation and bring such a facility back within NRC jurisdiction.²⁸ The proposed facility would seem to be similar to the current DOE-operated and regulated Nuclear Science User Facility, which provides private entities with access to technological facilities at the Idaho National Laboratory.²⁹ The research and development activities at that site are not licensed by the NRC.

Informal Cooperation and Technical Assistance

You have also asked whether the NRC, though not licensing the proposed facilities, would be able to provide the DOE and participating contractors with technical assistance to ensure the safety of the construction and operation of the facilities. Past and current practice shows that the NRC and DOE often provide each other with informal technical assistance. For example, the Naval Reactors Division of the DOE voluntarily provides NRC with safety analysis reports of reactor and spent fuel storage designs for its informal review.³⁰ Although the NRC issues no license, it nonetheless acts as an "independent safety advisor."³¹ The DOE and NRC also entered into a Memorandum of Understanding (MOU) outlining the NRC's role in providing "cooperation and support" during the DOE Hanford Tank Waste Remediation System Privatization program.³² Under the MOU, the NRC would "provide detailed briefings, guidance documents, and support [to the DOE] in developing important administrative and technical program elements of a regulatory program."³³ More generally, the MOU "gave NRC the opportunity to acquire an understanding of the wastes and potential treatment processes, and allowed DOE to see how NRC would perform reviews and develop an effective regulatory program for the potential transition to its regulatory oversight."³⁴ In December 2014, the NRC and DOE entered into an agreement establishing "a framework for the two agencies to exchange information related to safety issues associated with non-reactor nuclear facilities that would be beneficial to both agencies."³⁵ Finally, the DOE also regularly provides the NRC with technical assistance in non-routine licensing reviews.³⁶

There would appear to be an adequate statutory basis for the NRC to provide the DOE with technical assistance in the construction and operation of the proposed facilities. 42 U.S.C. § 5845 provides that the DOE shall "consult and cooperate with the [NRC] on research and development matters of mutual interest and provide such information and physical access to its facilities as will assist the [NRC] in acquiring the

²⁸ See, e.g., NRC Report: *Review of the U.S. Department of Energy's Regulatory Processes for the Hanford Waste Treatment Plant*, at 9 ("Unless expressly authorized by statute, NRC does not have authority to license or otherwise regulate DOE facilities.") Available at: <http://pbadupws.nrc.gov/docs/ML0811/ML081150883.pdf>.

²⁹ For more information on the Nuclear Science User Facilities see <https://atrnsof.inl.gov/default.aspx?Page=About%20Us&id=1>.

³⁰ External regulation of Department of Energy Nuclear Facilities: A Pilot Program, NUREG-1708 at 19.

³¹ *Id.*

³² Memorandum of Understanding Between the Nuclear Regulatory Commission and the Department of Energy for Cooperation and Support of the Department of Energy Hanford Tank Waste Remediation System Privatization Activities, January 2, 1997 available at: <http://pbadupws.nrc.gov/docs/ML9929/ML992920012.pdf>.

³³ *Id.*

³⁴ U.S. Gov't Accountability Office, GAO-09-61, Nuclear Safety: Department of Energy Needs to Strengthen Its Independent Oversight of Nuclear Facilities and Operations 68 (2008).

³⁵ Agreement for Nuclear Safety Information Exchanges Between the U.S. Nuclear Regulatory Commission, Office of Nuclear Material Safety and Safeguards and the U.S. Department of Energy, Office of Environment, Health, Safety and Security, available at: <http://energy.gov/sites/prod/files/2014/12/f19/DOE-NRC-Nuclear-Safety-Info-Sharing-Agreement.pdf>.

³⁶ See, Research and Test Reactors, available at <http://www.nrc.gov/reactors/non-power.html> ("The NRC often uses technical assistance from DOE's National Laboratories to supplement NRC staff efforts in conducting the high number of complex reviews...").

expertise necessary to perform its licensing and related regulatory functions.”³⁷ Similarly, 42 U.S.C. § 5814 provides that the DOE “shall utilize...the technical and management capabilities of other executive agencies having facilities, personnel, or other resources which can assist or advantageously be expanded to assist in carrying out” its responsibilities.³⁸ Finally, the Economy Act, which was cited as partial authority for the Hanford MOU, may also permit technical cooperation between the NRC and DOE. That statute provides agencies with the authority to place orders with another agency for “goods or services” so long as certain conditions are met.³⁹

³⁷ 42 U.S.C. § 5845(c).

³⁸ 42 U.S.C. § 5814(i).

³⁹ 31 U.S.C. § 1535.
