MONTGOMERY & ANDREWS, P.A.

MEMORANDUM

TO: Members of NORM Disposal Task Force

FROM: Ned Kendrick NK

DATE: March 14, 1996

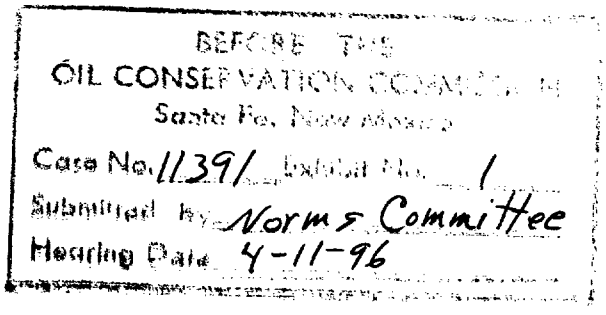
Enclosed is a copy of the Final Report of the NORM Task Force to the Chairman of the Oil Conservation Commission, hand-delivered to Chairman LeMay on March 14. Attachment F to the Report is our proposed NORM disposal rule.

The Final Report reflects revisions suggested by several Task Force members. The proposed rule is essentially identical to the re-formatted version you received last week, with only a few editorial, non-substantive revisions.

As we decided at our last meeting, we will meet at 3:00 p.m. on Wednesday, April 10 in the NMOCD hearing room to prepare for the hearing on April 11. Each of us should be prepared to testify in support of the proposed rule and answer questions from the Commission and interested parties in our areas of expertise.

EHK:km

[taskforce-memo]ehk



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March 14, 1996

HAND-DELIVERED

William J. LeMay, Chairman
Oil Conservation Commission
2040 South Pacheco
Santa Fe, NM 87505

Re: Case No. 11391: In the Matter of the Hearing Called by the Commission to Adopt a New Rule for the Disposal of NORM Associated with the Oil and Gas Industry

Dear Mr. LeMay:

I am pleased to submit the Final Report of the NORM Disposal Task Force. Attachment F to the Report is our proposed NORM disposal rule.

We believe the proposed rule is ready to be presented to the Oil Conservation Commission on April 11, 1996. Roger Anderson has re-formatted the proposed rule submitted to you with the Preliminary Report in accordance with the New Mexico Administrative Code. The Task Force has reviewed the re-formatted proposed rule and made minor changes in consultation with Roger. The enclosed Final Report has been revised and supersedes the Preliminary Report.

The only exhibit that the Task Force intends to introduce at the April 11 hearing is our Final Report. All members of the Task Force are potential witnesses for the presentation of the proposed rule and for answering any questions from the Commission or others.

I will check with you next week to confirm that the procedures we are following are acceptable to the Commission.

Sincerely,

Edmund H. Kendrick

EHK:km
cc: Roger Anderson (w/encl.)
99000-95-09
[lemay-031396]ehk

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION COMMISSION

IN THE MATTER OF THE HEARING
CALLED BY THE COMMISSION TO
ADOPT A NEW RULE FOR
THE DISPOSAL OF NATURALLY OCCURRING
RADIOACTIVE MATERIAL (NORM) ASSOCIATED
WITH THE OIL AND GAS INDUSTRY

CASE NO. 11391

FINAL REPORT OF THE NORM DISPOSAL TASK FORCE TO THE CHAIRMAN OF OIL THE CONSERVATION COMMISSION

On September 28, 1995, the Oil Conservation Commission ("Commission") commenced a public hearing to adopt a new rule for the disposal of naturally occurring radioactive material ("NORM") associated with the oil and gas industry. On October 23, 1995, the Chairman of the Commission appointed a NORM Disposal Task Force ("Task Force") to produce a draft rule. The schedule set by the Chairman of the Commission called for submission of a proposed rule to the Commission by March 1, 1996, distribution of the proposed rule to the public along with the April 11, 1996 Commission hearing docket, and then presentation of the proposed rule to the Commission at the April 11 hearing. This Report transmits the Task Force's proposed NORM disposal rule along with a background discussion of the proposed rule. Topics covered are the New Mexico Environmental Improvement Board ("EIB") NORM regulations, the Task Force process in developing the rule, the jurisdiction of the Oil Conservation Division ("OCD" or "Division") over NORM disposal and the rationale for the major provisions of the rule.

(1) Members of the Task Force

The twelve members of the NORM Disposal Task Force are listed in Attachment A.

(2) **Task Force Meetings**

The Task Force held six meetings in Santa Fe and Albuquerque on the following dates:

November 2, 1995	Santa Fe
November 21, 1995	Santa Fe
December 13, 1995	Santa Fe
January 11, 1995	Albuquerque
February 1, 1995	Santa Fe
February 20, 1995	Santa Fe

Minutes of each of these meetings were recorded and approved by the Task Force. Copies of these minutes, along with attendance sheets for each meeting, are enclosed as Attachment B.

(3) **The EIB NORM Regulations**

In August 1995, after more than four years of effort by representatives of the OCD, the New Mexico Environment Department ("NMED"), the oil and gas industry and environmental groups, NORM regulations were adopted by the EIB. These EIB NORM regulations are codified as 20 NMAC 3.1, Subpart 14 and are enclosed as Attachment C. The NORM subject to these regulations is associated with the oil and gas industry and not subject to regulation under the Atomic Energy Act of 1954, as amended. Only "Regulated NORM" is subject to the EIB NORM regulations. "Regulated NORM" is defined as NORM at a concentration of greater then 30 picocuries per gram of radium 226 above background, or NORM with a maximum radiation exposure reading at any accessible point that is greater than 50 microroentgens per hour, including background levels. 20 NMAC §§ 1402.N, 1403.

The EIB NORM regulations apply to any person who engages in the extraction, transfer, transport, storage or disposal of NORM. 20 NMAC § 1401.A. The regulations also apply to sludges and scale deposits in tubulars and equipment and to NORM deposits in soil, water and the environment. § 1401.B. Sections of the regulations address the protection of workers (§ 1405), protection of the general population from releases of radioactivity (§ 1406), radiation survey requirements (§ 1408), requirements for storage of regulated NORM (§ 1409), general licenses for handling NORM (§ 1410), specific licenses for handling NORM (§ 1411), as well as other requirements.

Section 1407 of these EIB regulations, "Disposal and Transfer of Regulated NORM for Disposal," provides the regulatory framework for the Task Force's proposed NORM disposal rule. Several of the NORM disposal options discussed in that section require that disposal be pursuant to "applicable Division [OCD] rules and regulations." As discussed below in Section 4 of this Report, the Task Force examined each NORM disposal option in § 1407 requiring OCD approval and determined how each option should be addressed in the proposed rule.

(4) **Task Force Procedure**

A. **Determination of Scope of Rule**

The Task Force identified seven disposal options mentioned in § 1407 of the EIB NORM regulations. We analyzed each option to determine how it should be addressed in the proposed OCD rule and concluded as follows:

1. **Disposal of Regulated NORM on or Near the Surface of the Ground (§ 1407.A)** -- The regulations require that such disposal be pursuant to a general license issued under § 1410 of the EIB NORM regulations and under Subpart 13 of the EIB Radiation Protection Regulations and pursuant to OCD Rule 711. The Task Force determined that this disposal option overlaps with the commercial and centralized facilities disposal option discussed below in option 4 and therefore will be covered by that option.

2. **Blending or Discing Regulated NORM Contaminated Soils in Place (§ 1407.A)** -- This option does not refer to any OCD rule and does not involve transferring regulated NORM from one location to another. Consequently, the Task Force determined that the EIB NORM regulations at § 1407.A and a related provision at § 1410.I are adequate regulatory authority for an oil and gas operator to manage soil in-place that has been contaminated with Regulated NORM. These provisions apply to soils contaminated with Regulated NORM prior to August 2, 1995, the date that the EIB NORM regulations became effective.

3. **Disposal in Nonretrieved Flowlines and Pipelines (§ 1407.D.1)** -- The Task Force determined that this disposal option must be addressed by the proposed OCD rule.

4. **Disposal at Commercial or Centralized Facilities (§ 1407.D.2)** -- This disposal option requires a specific license pursuant to § 1411 of the EIB NORM regulations, compliance with Subpart 13 of the EIB Radiation Protection Regulations and a permit from OCD. The Task Force assumes that the OCD permit could be pursuant to either OCD Rule 711, which addresses commercial or centralized surface waste management facilities, or OCD Rule 701, et. seq., which addresses injection of fluids into reservoirs. Consequently, the Task Force believes that the EIB intended this disposal option to cover both commercial and centralized surface waste management facilities and commercial injection facilities. The Task Force determined that both disposal options should be addressed by the proposed rule.

5. **Disposal in Plugged and Abandoned Wells (§ 1407.D.3)** -- The Task Force determined that this disposal option must be addressed by the proposed OCD rule.

6. **Disposal by Injection (§ 1407.D.4)** -- This disposal option covers injection of Regulated NORM into Underground Injection Control ("UIC") Class I nonhazardous and Class II wells. Because of the clear reference to OCD rules, the Task Force determined that this disposal option must be covered by the proposed OCD rule. The proposed rule should be adequate to cover both Classes of UIC wells. The proposed rule will also cover injection in commercial disposal facilities, which is authorized by § 1407.D.2 in option 4, as discussed above.

7. **Alternative Disposal Methods (§ 1407.D and D.5.d)** -- This general disposal option requires the applicant to demonstrate that its methods will protect the environment, public health and fresh water supplies, and will be otherwise consistent with EIB NORM regulations, other provisions of EIB Radiation Protection Regulations and applicable OCD regulations. The Task Force determined that the disposal methods specifically mentioned in § 1407 of the EIB regulations provide a sufficient number of options for the proposed OCD rule at this time. The OCD rule can be amended in the future to accommodate innovative NORM disposal options as they become known.

B. Consideration of Other States' NORM Disposal Regulations

The Task Force began by reviewing adopted or proposed NORM disposal regulations or guidelines for Texas, Louisiana, Mississippi and Alaska. Although informative, these regulations and guidelines did not provide a satisfactory starting point for the Task Force's work. As discussed above, the scope of the Task Force's proposed rule is established by § 1407 of the EIB NORM regulations.

C. Consideration of OCD's 1993 Draft of NORM Disposal Options

In 1993, while a committee of NMED, OCD, and industry and environmental group representatives developed a proposed draft of EIB NORM regulations, the OCD Environmental Bureau produced a preliminary draft of NORM disposal options. The draft addressed nonretrieved flowlines and pipelines, commercial and centralized oilfield treatment and disposal facilities and downhole disposal in wells to be plugged and abandoned. The Task Force decided that this draft of NORM disposal options was a useful starting point for developing a proposed rule. Besides amending these sections, the Task Force added sections on the purpose of the rule, four types of disposal by injection, and notification.

D. **Consideration of the Jurisdiction of the Rocky Mountain Low-Level Radioactive Waste Board**

The Rocky Mountain Low-Level Radioactive Waste Board ("Board") is created by the Rocky Mountain Low-Level Radioactive Waste Compact ("Compact"). NMSA 1978, § 11-9A-1, et. seq. New Mexico, Colorado and Nevada are the member states of the Compact. The Board asserts the position that it has jurisdiction over NORM associated with the oil and gas industry. Such asserted jurisdiction includes the regulation of NORM disposal, unless and until exempted by amendments to the Compact. A report to the Task Force was prepared by Task Force member Jeff Ralston, analyzing the legality of the Board's position. This report is enclosed as Attachment D.

Although the Task Force is concerned about the potential adverse impact of Board jurisdiction over NORM disposal, we recognized that the issue is outside the scope of the Commission's charge to the Task Force. Consequently, the Task Force is not making any recommendation to the Commission on this issue. Several members of the Task Force intend to approach the Board in an attempt to resolve these jurisdictional issues after the work of the Task Force is completed.

(5) **Jurisdiction of the OCD**

The Task Force has determined that NORM is not a hazardous waste regulated under Subtitle C of the Resource Conservation and Recovery Act ("RCRA"). 42 U.S.C. § 6901, et. seq. This conclusion is based upon legal analysis by Task Force member Jamye Boone Ward, a copy of which is enclosed as Attachment E. Task Force member David Catanach has confirmed this conclusion based on conversations that he has had with representatives of the U.S. Environmental Protection Agency.

NORM, as oilfield waste, is excluded from the definition of solid waste in the New Mexico Solid Waste Act, NMSA 1978, § 74-9-1, et. seq., which is administered by NMED. Further, OCD has been granted jurisdiction by the New Mexico Oil and Gas Act at NMSA 1978, § 70-2-12.B(21) and (22), to regulate the disposition of wastes from a variety of oilfield processes. The Task Force believes that the OCD has regulatory jurisdiction over these wastes, notwithstanding the presence of low-level radiation in these wastes.

Although NMED is precluded from regulating these wastes under Subtitle C of RCRA and under the New Mexico Solid Waste Act, NMED has jurisdiction over these wastes under the New Mexico Radiation Protection Act, NMSA 1978, § 74-3-1, et. seq., and the EIB Radiation Protection Regulations promulgated thereunder at 20 NMAC 3.1. The concurrent jurisdiction of NMED and OCD is recognized by the EIB NORM regulations at 20 NMAC 3.1, Subpart 14, which are part of the EIB Radiation Protection Regulations. As discussed above in Sections 3 and 4 of this Report, it is § 1407 of the EIB NORM regulations that defines the scope of the Task Force's proposed OCD NORM disposal rule.

(6) Task Force Recommendation to the Commission

The Task Force recommends adoption of the proposed NORM disposal rule enclosed as Attachment F.

(7) Task Force Rationale for the Proposed NORM Disposal Rule

A. General Approach to Drafting the Proposed Rule

The purpose of the following text is to provide some of the reasoning underlying the rule as written by the Task Force. Members of the Task Force intend for the proposed rule to build upon the existing OCD rules. Therefore, the proposed rule refers and relates to existing rules where possible to prevent repeating identical procedures and regulatory requirements. An effort was made to keep the proposed rule brief and understandable. During the process of drafting the language of the proposed rule, the NORM Task Force discussed the mechanics of implementing each section. Some sections of the rule may be more clearly understood when read in conjunction with the corresponding section of this rationale. The purpose of this rationale is to preserve some of the original intent and the reasoning of the NORM Task Force.

B. Title of the Rule

The Task Force recommends that the title be "Disposal of Regulated Naturally Occurring Radioactive Material (Regulated NORM)" to provide adequate notice of the subject matter of the rule.

C. Purpose Section

The Task Force recommends a short "Purpose" section at the beginning of the rule primarily to make a reference to the EIB NORM regulations at 20 NMAC 3.1, Subpart 14. Operators accustomed to OCD rules should be informed clearly that they are also subject to the EIB NORM regulations.

D. Additional Definitions

"Regulated NORM" is defined in the EIB NORM regulations at 20 NMAC 3.1, Subpart 14. Because this definition is so critical to determining when the proposed NORM disposal rule applies, the Task Force recommends that the definition be repeated either in the NORM disposal rule or in the General Definitions section of the OCD rules.

E. Nonretrieved Flowlines and Pipelines

Abandoning buried flowlines and pipelines ("pipelines") in place is an occasional practice in the oil and gas industry. It tends to be more protective of the environment than removal, because removal involves substantial surface disturbance and increases the risk of spills or releases to the environment. In the proposed rule, the Task Force tried to create an approval process for abandonment of buried pipelines that would provide for adequate protection of the environment, public health, and fresh waters through radiation surveys of buried pipelines at the surface of the ground along the pipeline route and at all accessible points. "Accessible points" in this rule has the same meaning as the definition in the EIB NORM regulations at 20 NMAC 3.1, § 1402.A:

> "Accessible point" means any external location on a piece of equipment, or place on a facility where NORM or Regulated NORM may be present. This includes any internal location which can be reached through an opening, by removal of a plate, lid or hatch or which is made accessible as a result of structural modifications;

The proposed rule provides a means for reducing the regulatory requirements applicable to buried pipelines containing Regulated NORM. If removal of an appurtenance of a pipeline containing Regulated NORM leaves no evidence of Regulated NORM in the remaining pipeline at an accessible point or at the ground surface, notice to surface owners is not required. However, all other requirements of Paragraph B of the proposed OCD rule must be met concerning the pipeline left in the ground, and all applicable requirements of EIB and OCD regulations must be met concerning the management of the Regulated NORM in the removed pipeline appurtenances.

The purpose of allowing abandonment of buried pipelines is to minimize disturbance of the soil surface and to better control the release of potentially contaminated pipe. The Task Force does not intend for the abandonment of buried pipelines to become a method for disposing of any Regulated NORM other than that present in the pipeline at the time of proposed abandonment. The presence of Regulated NORM in pipelines is not an acceptable reason to use the abandoned pipelines for additional disposal of NORM or any other waste material.

F. Commercial or Centralized Surface Waste Management Facilities

The Task Force drafted this section with the intent that commercial or centralized surface waste management facilities should not become operational for the disposal of Regulated NORM without, at least, (1) an order from the Division, (2) a Division Rule 711 permit, (3) appropriate licenses issued by the

NMED, and (4) any other approvals required by law. The purpose of requiring all these approvals from other agencies prior to the issuance of Division approval is to provide additional assurance that the facility has adequately defended its design, methods of disposal and monitoring, and procedures to protect the environment, public health, and fresh waters. In addition, the prior approval processes conducted by other agencies will give the public additional notification and opportunity to participate in hearings prior to issuance of a Division order granting or denying the application. The Task Force proposes that the Division hold a hearing on every application to dispose Regulated NORM in a commercial or centralized surface waste management facility.

G. Downhole Disposal in Wells to be Plugged and Abandoned

The Task Force believes there are significant advantages to disposal of Regulated NORM in wells to be plugged and abandoned. The Regulated NORM is removed from the surface of the ground and is encapsulated in the wellbore.

Existing Division rules on plugging and abandonment (Rule 701, et. seq.) provide almost all the protection needed for disposal of NORM in wells to be plugged and abandoned. The operator is required to give notice of such intent to the Division using Form C-103. Such notices of intent to plug a well must include, among other things, a detailed statement of the proposed work. The operator is required to permanently mark the exact location of a plugged and abandoned well with a steel marker identifying the operator, the lease name, the well number, and the location. Additionally, a report of all work performed must be filed with the Division. As a consequence, detailed descriptions of the plugging operations become a part of the permanent record maintained by the Division for each well that is plugged and abandoned.

In addition to the normal plugging requirements, the proposed rule imposes several additional requirements specific to NORM disposal. For example, the application must state that Regulated NORM will be placed in the wellbore and must describe the character and radioactivity levels of the Regulated NORM and the depths of disposal. The application must also provide proof of notification to the surface owner and mineral lessee. The plugged wells containing Regulated NORM will be distinguished from the other wells by color dyeing both the cement plug located directly above the Regulated NORM and the surface plug with red iron oxide. The additional requirements unique to NORM disposal, although not extensive, are sufficient to protect the environment, public health and fresh waters.

The Task Force considered the potential reentry of wells that had been used for the disposal of Regulated NORM. Such a reentry cannot be accidental, because all reentries must be approved by the OCD and the approval process requires file searches that would point out previous activity.

The Operator has the burden of proving to the OCD that the reentry either for further NORM disposal or for further production will be conducted in a manner that protects the environment, public health and fresh waters.

H. Injection

As with disposal in plugged and abandoned wells, disposal of Regulated NORM by injection is especially appropriate since injection is an established and regulated form of disposal of oilfield waste designed to be protective of the environment, public health, and fresh waters.

1. Disposal Wells

The Division procedure for injecting into a disposal well requires completion and approval of an OCD Form C-108 (Application for Authority to Inject). The Task Force intends that the injection of Regulated NORM into a disposal well will be controlled by requiring completion of the Form C-108, proof of notice to the surface owner and mineral lessor, and an injection zone at least 100 feet below the lower most known underground source of drinking water.

The proposed rule imposes a number of requirements after the injection takes place to protect the environment, public health and fresh waters. These requirements include additional information in the OCD Form C-103 (Subsequent Report Form) describing the source, radiation level, quantity, process used to improve injectivity, and date of injection of the Regulated NORM; notice to the Division of mechanical failures; measures to remedy mechanical failures; and monitoring if failures are reported.

2. Injection in Enhanced Oil Recovery ("EOR") Injection Wells

Disposal of slurrified Regulated NORM into EOR injection wells is an environmentally sound method of subsurface disposal. The continuous decaying of uranium and thorium are the sources of NORM generated during oil and gas production. Disposing of Regulated NORM mixed with slurry into EOR injection wells represents a return of the NORM to similar formations from which it was originally produced. So long as the slurry is a stable material and the disposal is carefully controlled, this form of disposal should prevent the inappropriate release of NORM. The Task Force relies on a statement prepared by Exxon Production Research Company on the disposal of slurrified NORM waste in EOR injection wells enclosed as Attachment G.

As with disposal in commercial or centralized surface waste management facilities, the Task Force intends that disposal of Regulated NORM into EOR injection wells should occur only after notice and hearing. Notice and hearing requirements provide the public an opportunity to participate in the decision to approve or deny an applicant's request to dispose

of Regulated NORM in an EOR injection well. In addition, under the rule as proposed, the Division may approve disposal in EOR injection wells only if such action is consistent with its statutory obligation to prevent waste of crude petroleum oil and natural gas. NMSA 1978, § 70-2-2. (1995 Repl. Pamp.).

3. Injection Above Fracture Pressure

During completion of a well, oil and natural gas production may be enhanced through fracturing a formation. The resulting fractures are propped open using a variety of materials including sand or rock. This technology is utilized deep beneath the surface and rarely, if ever, adversely affects the environment. The process of injecting above fracture pressure is a common practice in the oil and gas fields and is not substantially altered by utilization of the process to dispose of Regulated NORM. The applicant proposing to dispose of Regulated NORM is required to demonstrate, by model simulations and by any other evidence, that fractures will not be propagated beyond confining layers. Applications for injection of Regulated NORM in disposal wells above fracture pressure can only be granted after notice and a public hearing.

4. Injection in Commercial Disposal Facilities

As with commercial or centralized surface waste management facilities, prior to receiving Regulated NORM, an operator of a commercial disposal injection facility must defend its application at a public hearing. The operator must comply with all the requirements imposed on a non-commercial NORM disposal well, and in addition obtain two licenses pursuant to EIB Radiation Protection Regulations at 20 NMAC 3.1, Subparts 13 and 14.

I. Notification

The Task Force determined that the extent of required notification may differ according to the type of NORM disposal. These requirements are specified separately for each disposal option. For nonretrieved flowlines and pipelines, all surface owners of land where the pipeline is located must be notified of the proposed abandonment. For each well to be plugged and abandoned, the surface owner and the mineral lessor must be notified. For commercial or centralized surface waste management facilities, notice of the application must be given as required by OCD Rule 711. For each of the four types of disposal by injection, notice must be given as required by OCD Rule 701.B.

There may be situations where additional notice, beyond what is specifically required for each disposal option, may be advisable. Consequently, as stated in Section VI.A, the Task Force believes that the OCD Director should have discretion in specific cases to require additional notice prior to considering an application for NORM disposal.

The Task Force determined that a hearing is not necessary in every case for proposed abandonment of nonretrieved flowlines and pipelines or for downhole disposal in wells to be plugged and abandoned. Section VI of the proposed rule describes how the determination is made to hold hearings on these types of disposal. A notified party must file a hearing request with the Division within 20 days of notice, and then the Division Director exercises his discretion as to whether there is sufficient cause to hold a hearing. For all other disposal methods, i.e., in commercial or centralized surface waste management facilities and in each of the four types of injection wells, a hearing is held in every case.

(8) **Task Force Concurrence in this Report**

All members of the Task Force participated in varying degrees in the development of the proposed NORM disposal rule recommended by this Report. While each member may not have chosen the same regulatory language, each member supports adoption of the rule as proposed. Consequently, it is not necessary to offer any alternative proposals to the Commission.

Respectfully submitted this 14th day of March, 1996,

NORM DISPOSAL TASK FORCE

By 

Edmund H. Kendrick
Chairman

[norm-rpt]ehk

NORM DISPOSAL TASK FORCE
MINUTES OF 11-2-95

1. Meeting was called to order at 9:00AM by Chairman Ned Kendrick and everyone introduced themselves and discussed what they hoped to accomplish on the Taskforce.

2. It was determined that the charge of the Taskforce would be limited to work on regulations for downhole disposal, since surface or land disposal will required the reopening of OCC Rule 711 and consideration under Subpart 13. The taskforce charge shall read as follows:

   CHARGE: Produce a draft of proposed rules and regulations to address the subsurface disposal of oilfield NORM.

   Subsurface disposal methods to be considered are:

   A. Pipelines and flowlines left in place

   B. Downhole injection
      1. Downhole disposal may require a change in the UIC primacy grant by EPA.
         a. Injection of Hazardous Material in Class I well regulated by WQCC through ED.
         b. Injection of Non-hazardous material in Class I well regulated by OCD.
         c. Injection in Class II well regulated by OCD.
      2. NORM is an E & P waste, but does it have a RCRA exemptions?

   C. Disposal in Plugged and Abandoned wells.

   It was determined that the final recommendation will contain language that will allow the OCD and ED to consider and administratively approve new and innovative methods of downhole disposal unless the methods require consideration under other rules or subparts.

3. Objectives of the Taskforce are:
   A. Approval of disposal method at the lowest possible level such as OCD District office with administrative approval unless objection is made.
   B. Ensure disposal methods are environmentally safe
   C. Keep the rules and regulations simple.
   D. Disposal will result in permanent disposal.
   E. Ensure that disposal method will avoid future litigation.

F. Obtain buy-in of all parties as a result of participation on the Taskforce resulting in minimal time delays for outside approvals latter (ED, BLM, SLO, OCD, environmental community and industry).

4. Discussion of Texas regulations on disposal of oilfield NORM

The regulations are not very thorough, yet they will be reviewed with the hope that they can assist in providing guidance in the consideration of the OCD initial draft.

5. Discussion of Louisiana regulations on disposal of oilfield NORM.

The regulations were handed out at the meeting so now discussion was held. The regulations will provide another tool to be used to work on the OCD initial draft.

6. Consideration of OCD draft on NORM disposal as a starting point.

The draft was prepared in 1993 and has not been worked on since that time. It will provide a starting point for the taskforce and be modified using the Texas, Louisiana and other rules as appropriate.

7. Tasks and assignments:

A. Bill Floyd will review and make available the Rocky Mountain Low Level Waste Compact minutes of the meeting with ED on the NORM disposal options. The minutes to be furnished to NED for distribution.

B. Ned Kendrick to contact Doug Frazier (Sierra Club) to see if he wants to be on Taskforce in order to assure that the environmental community is sufficiently represented since Chris Shuey will not be able to attend all the meetings.

C. Jeff Ralston will get the Alaska and Mississippi NORM disposal regulations and get them to Ned for distribution before the next meeting.

D. David Catanach will check with Richard Ginn of Texas and the EPA to ensure if NORM above the action level can be injected in Class II well and verify the RCRA exemption for NORM waste.

E. Gary Stephens will get Onshore Order 7 to Ned for distribution to the Taskforce.

F. All members of the Taskforce will review the Texas and Louisiana regulations and other reference material and provide comments to Ned by November 8, 1995. These comments will be gathered and returned to all Taskforce members to be prepared to discuss them by the next meeting.

8. Next meetings are scheduled for November 21, 1995 and December 13, 1995. Both meetings to be held in the NMOCD hearing room at 9:00AM MST.

RFG/s

11/2/95 NORM Task Force
(Santa Fe)

Roger Anderson	NMOCD	(505) 827-71
MARK ASHLEY	NMOCD	(505) 827-7155
Jeff Ralston	Exxon Co. USA	(713) 656-7208
Bill Floyd	NMED	(505) 827-15
GARY STEPHENS	BLM	(505) 438-745
Ruth Andrews	NMOGA	(505) 982-28
Bob Frank	Philip Environmental	505-326-22
Mike Butts	I+W, Inc.	(505) 677-211
Raye Miller	Marbob Energy Corp	505-748-330
FRANK GRAY	Texaco E&P	915-688-29
MARK SCHMIDT	NM State Land Office	(505) 827-573
Ned Kendrick	Montgomery & Andrews	(505) 986-25
David Catanach	NMOCD	(505) 827 818

NORM DISPOSAL TASK FORCE
MINUTES 11-21-95

1. Meeting was called to order at 9:00 AM by Chairman Ned Kendrick .

2. Minutes of 11-2-95 meeting were approved as submitted.

3. Discussed the charge of the taskforce to determine if the surface disposal of NORM should be addressed by this group. After some discussion, a motion was made and approved to keep the basic charge of the taskforce to address subsurface disposal, but the Director will be advised that the taskforce will be willing to continue to work on surface disposal after this charge is complete. The time involved in amending Rule 711, and assuring its consistency with EIB Subpart 13, will be too long to hold up the subsurface rules.

4. Task Force Membership - Ned advised that efforts to contact Mr. Fraser (Sierra Club) had not been successful, so it was determined that the Task Force would not be supplemented with an additional Environmental Community representative. Mr. Shuey will be very active in monitoring the Task Force progress and will attend meetings when it is possible or necessary. The Independent Petroleum Association will be placed on the mailing list. Roger Anderson will contact Eric Ames of Sierra Club to see if they want to be on mailing list.

5. Ned Kendrick reported on the proposed revisions to the Rocky Mountain Low Level Radioactive Waste Compact (Compact). The Rocky Mountain Low Level Waste Compact Board (Board) has proposed amendments to the Compact that will exempt the 3 options we are addressing in subsurface disposal. It will however take until 1997 at a minimum to get the exemptions approved through the three member states and Congress. This means that a P&A would have to be approved by the Board with a designation of the site as a Regional Facility. Also, the movement of radioactive waste from New Mexico to Texas (or any other non-Compact State) or from Texas to New Mexico would also have to be approved by the Board (Texas declined to join the Compact). This appears to be a roadblock to disposal activities at this time. Bill Floyd will look at the possibility of ED making a blanket application for temporary approval of the state (or separate producing areas of the state such as southeast and northwest) as a Regional Facility for P&A well disposal.

6. Gary Stephens discussed Onshore Order 7. The Order discussed the disposal of produced water in both surface and subsurface. It does not allow or prohibit the disposal of NORM. The NORM contained in produced water is no problem. The EPA's UIC program is reference and since the EPA has given primacy to New Mexico for UIC, then BLM will accept whatever the State approves. David Catanach advised that EPA has no rules for NORM, so State is open to propose rules. EPA wants to see State proposed rules.

7. A request had been made by a vendor to present a research project description to the Taskforce. The Taskforce determined that it did not desire to have presentations by vendors at this time. Raye will discuss with Conoco (project on their lease) to see if they will discuss the issue with the Taskforce.

8. A discussion of the RCRA exemption of NORM took place. Gary reported that in both 1990 and 1993 the BLM had determined that since NORM came from the reservoir, it had a RCRA exemption. Jayme advised that there had been some concern that even though it had a RCRA exemption, it was still a hazardous waste. Jeff advised that API has determined that NORM had a RCRA exemption and does not have RCRA characteristics of a hazardous waste. Jayme will research and report at next meeting. Also, David will discuss with Richard Ginn of Texas to determine if they got a decision on this when they approved disposal in Class II wells.

9. Taskforce began to wordsmith the Nonretrieved Flowlines and Pipelines section of OCD draft. Several changes were approved and a new draft will be prepared by Raye and Frank and will be submitted to the Taskforce by 12-6-95.

10. Taskforce began wordsmithing the P&A disposal method in the OCD draft. It soon became evident that the draft and most of the proposed changes presented a rule that was to detailed and specific. The taskforce then determined that an effort would be made to work with the idea that the disposal of NORM in P&A well would be done under the OCD rules for P&A but with several particular items that must be done to modify the rules to facilitate NORM. A new draft will be prepared by Raye and Frank and submitted to Taskforce by 12-6-95.

11. Taskforce determined to delay a detailed look at drafting an injection draft of the OCD regulation until further progress is made on drafts for the other two disposal methods.

12. Tasks and assignments:

    A. Bill Floyd will look into the ED making an application to the Board to establish a temporary Regional Facility consisting of all P&A wells in New Mexico that qualify under OCD NORM disposal regulations. Upon approval of the exemptions by the three member states and Congress as proposed by the Board in 1997, this will no longer be needed.

    B. Jayme Boone Ward will report on the concern that NORM might have a RCRA exemption but still be classified as hazardous waste.

C. David Catanach will discuss with Richard Ginn of Texas how the EPA and Texas looked at NORM injection/disposal in Class II wells.

D. Raye Miller will visit with Conoco to see if they want to come to next meeting to discuss the DOE research project to be conducted on their lease.

E. Bill Floyd will see if any rules of the NMOCD must be looked at by the Board before implementation can occur.

F. Raye Miller and Frank Gray will prepare draft of Nonretrieved flowlines and pipelines as well as Disposal in P&A wells sections and get to Taskforce by 12-6-95.

G. Raye Miller, Jeff Ralston, and Frank Gray will try to bring first draft of Injection rules to meeting on 12-13-95. This draft will not be worked until further progress has been made on the other two disposal methods.

H. Roger Anderson will put IPA on the Taskforce mailing list and will ask Eric Ames of Sierra Club if that organization wants to be on the mailing list.

13. Next meeting of the Taskforce will be at 9:00AM MST, Wednesday, December 13, 1995 in the NMOCD hearing room.

Frank Gray

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NORM TASK FORCE MEETING

11/21/95 - Santa Fe

Bill Floyd	New Mexico Environment Department
David Catanach	New Mexico Oil Conservation Division
Frank Gray	Texaco, Inc.
Gary Stephens	Bureau of Land Management
Jamye Boone Ward	El Paso Natural Gas Company
Jeff Ralston	Exxon Co. USA
Mark Schmidt	New Mexico State Land Office
Ned Kendrick	Montgomery & Andrews
Raye Miller	Marbob Energy Corporation
Ruth Andrews	New Mexico Oil & Gas Association

(List prepared by Ned Kendrick after the meeting)

[normlist]ehk

NORM DISPOSAL TASK FORCE
MINUTES 12-13-95

1. Meeting was called to order at 9:00 AM by Chairman Ned Kendrick.

2. Minutes of the 11-21-95 meeting were approved as submitted.

3. Taskforce membership and mailing list - Mr. Doug Fraser advised that he was not interested in being on the taskforce but will check with Sierra Club to see if anyone else is interested. Eric Ames could not be reached. IPANM and NMOGA will be added to the mailing list for next mailout which will include all past paperwork.

4. Rocky Mountain Low Level Radioactive Waste Compact - Ned Kendrick, Jayme Boone Ward and Ruth Andrews developed proposed changes to the RMLLRWC proposed amendments. The changes were approved by the Rocky Mountain Low Level Radioactive Waste Board (Board) and reflect a change to the definition of "Disposal by Injection" to reflect injection into "underground injection well" rather than into "wells" which could have been construed to be "oil and gas wells". The purpose was to broaden the RMLLRWC exemption for disposal by injection. This language is part of the amendments that the Board will submit to the party states and to Congress in 1997.

   There were questions concerning the approval level required to make the exemptions proposed by the board for our disposal methods. It is stated under Article 8.C that 2/3 approval is required for Compact modification. Taskforce members who had spoken to Mr. Leonard Slosky, Executive Director of the Board, had understood that the Compact could not be changed until there was approval by all three states legislatures and Congress; however, Bill Floyd will check with Mr. Slosky on this.

   Bill Floyd will continue to discuss with Mr. Slosky the possibility of NMED getting a temporary classification for New Mexico or for SE and NW New Mexico as Regional Facility so that every well or pipeline where NORM is disposed under OCD rules would not have to be so named. Bill will also see if the Board needs to see the NMOCD rule before it is finaled.

   Bill Floyd will check with Mr. Slosky to see if movement of NORM "to" or "from" the State or Compact region requires approval by the Board. It appears that such approval is required and that severe fines are levied for failure to acquire approval. Envirocare and U S Ecology have agreements with the Board, but movements to these locations still require Board approval.

5. Information from EPA and Texas on NORM disposal in Class II wells - David Catanach reported that EPA does not consider NORM an issue as far as injection in wells. Texas assumed NORM to be RCRA exempt. EPA reviewed their program and had no comments. We will give EPA a copy of the New Mexico rule for review and comment. Ned Kendrick reported that radioactivity does not make a waste hazardous by characteristic.

6. Conoco's Jimmy Carlile reported on the DOE Research project for NORM disposal and Conoco's possible participation in the project.

7. RCRA exemption for NORM - Jayme Boone Ward made some comments concerning her research. Jayme will provide a brief of her research to include in the committee records.

8. Chris Shuey's 11-21-95 comments on the first draft disposal rule.
   - 1.a This comment refers to old draft rule which has been thrown out and new comments will be solicited.
   - 1.b A pressure test on pipeline gains nothing and potentially could cause substantial harm if failure occurred during test. Since nothing is being placed in pipeline other than what was there naturally, no pressure test is required.
   - 2.0 We are not overlooking the Commercial or surface disposal option, but we are sidelining them for the time being. Since use of surface disposal would require modification of Rule 711 and NMEIB Subpart 13, we realized we could not meet the time deadline. The committee will address this issue after April, 1996.
   - 3. 0 The new draft rule provides for Division approval. Landowner notification is prescribed in the new draft. NMOCD cannot require landowner approval. Anyone can comment and indicate dissent or protest, and that input will be considered in the OCD decision. The NMEIB did not agree to table this issue of landowner approval, but deleted it and replaced it with landowner notification. NMOCD environmental procedures are that the Director will look at the number and nature of comments to call hearings. It is unanimously agreed by the committee that landowner approval can not be required.

   The rest of Chris Shuey's comments concerned the old draft which has been done away with. New comments on the new draft will be considered.

9. Frank Chavez, Director of Aztec NMOCD District Office presented considerations by NMOCD as to P&A requirements currently.

Current NW P&A procedure:

Cement plug across perforations to 50' above perforations
Cement plug across & 50' above any other zones of potential production
Cement plugs between water zones
Cement plug across casing stub (50' in & out of casing)
Cement plug across surface casing bottom. Surface casing to be 50' into bedrock below the alluvial water.
Cement plug at the surface.

The NW has tertiary water which is fresh to as deep as 3000' that is only protected by production string. Such a well would have producing zones a few hundred feet below the water that were isolated and the next plug at 400' from surface so that the USDW is isolated with a plug below and above. Such a well would not be candidate for NORM disposal.

Frank Chavez agreed with Taskforce members that the deflection plate would not be required. Also, Taskforce advised Mr. Chavez that there would be provisions for contingency plan and training for emergency situations in NORM disposal.

Mr. Chavez furnished procedure for handling lost logging tool which is a much higher radioactive source. The procedure does not require landowner notification. Only notify NMOCD and NMED.

Taskforce answered several questions from Mr. Chavez such as:

Does NORM in P&A have to be only from the lease that the P&A is done? NO, the NORM must be from the operator's leases unless operator has a specific license to dispose commercially.
Does NORM have to be from New Mexico? The RMLLRWC addresses that issue as discussed in earlier minutes.

10. Nonretrieved flowlines and pipelines - Raye Miller and Frank Gray presented the new draft on this disposal method. The committee wordsmithed the draft with particular attention to notification and determination if line contains Regulated NORM by survey. Several changes were made. Raye Miller, Jeff Ralston and Frank Gray will work on redrafting and submit for taskforce consideration before next meeting.

11. Plugged and abandoned wells - Raye Miller and Frank Gray presented the new draft on this disposal option. The committee wordsmithed this draft again with particular attention to notification. It was determined to have landowner notification specifics by disposal method and a General Notification requirement as Section V of the Rule. Raye Miller, Jeff Ralston and Frank Gray will work on redrafting this Section and have a new draft for distribution to the Taskforce before the next meeting.

12. Other business - Raye Miller, Jeff Ralston, and Frank Gray will finish the first draft of the injection disposal option and get it to David Catanach for review by 12/18/95. Comments will be included and a draft distributed to the Taskforce before the next meeting.

13. Tasks and Assignments -

    a. Roger Anderson will get IPANM and NMOGA added to mailing list and get them up to date on all prior correspondence.

    b. Bill Floyd will :
        1. See if NMED can get temporary classification of state or NW & SE as Regional Facility for disposal to satisfy the RMLLRWC rules until exemption is granted.
        2. Determine if RMLLRWC needs to see NMOCD rule before final.
        3. Does 2/3 approval under Article 8.C impact approval of exemption?
        4. Does NORM movement "to" or "from" state require RMLLRWC Board approval?

    c. Jayme Boone Ward will prepare a brief as to NORM RCRA exemption and file it with taskforce.

    d. Raye Miller, Jeff Ralston, and Frank Gray will redraft the Nonretrieved Flowlines and Pipeline section, the P&A wellbore section and prepare first draft of injection section. Redrafts and new drafts will be distributed to taskforce before next meeting.

    e. Ned Kendrick and Jayme Boone Ward will review the above drafts from legal standpoint and furnish comments to Frank Gray by 12/22/95.

    f. David Catanach will review Injection section and get comments back to Frank Gray by 12/22/95.

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12-19-95

Frank Gray

NORM TASK FORCE MEETING

12/13/95 - Santa Fe

Ned Kendrick	Montgomery & Andrews	(505) 986-2527
Roger Anderson	NMOCD	(505) 827-7152
Raye Miller	Marbob Energy	(505) 748-3303
Frank T. Chavez	NMOCD - Aztec	505-[illegible]
Jeff Ralston	Exxon Co. USA	(713) 656-7208
Jimmy D. Carlile	Conoco Inc.	(915) 686-5425
Ruth Andrews	NMOGA	(505) 982-2898
Charlie Curlee	Marathon Oil Co.	(915) 687-8320
GARY STEPHENS	BLM	(505) 438-7451
MARK SCHMIDT	NM STATE LAND OFFICE	(505) 827-5738
Bill Floyd	NMED	(505) 827-1564
Frank Gray	Texaco E&P	915 688 2972
MARK ASHLEY	NMOCD	(505) 827-7155
David Catanach	NMOCD	(505) 827-8184

NORM DISPOSAL TASKFORCE
MINUTES 1-11-96

1. Meeting was called to order in El Paso Natural Gas Co. offices in Albuquerque at 9:30 AM by Chairman Ned Kendrick.

2. Minutes of the 12-13-95 meeting were approved as written.

3. Review of old business:
   A. Roger Anderson added NMOGA, IPANM, Marathon, and Sierra Club to the taskforce mailing list. (Eric Ames of Sierra Club advised that he did not want to see any of this material or be a part of the taskforce.) Therefore Seirra Club has been removed from the mailing list.
   B. Bill Floyd visited with the with Mr. Slosky of the Rocky Mountain Low Level Radioactive Waste Board (Board). He was advised that an amendment to the Compact required approval of all three state legislatures and Congress. There was no reduced level of approval such as 2/3 of states, etc. Bill also discussed the potential of getting a blanket designation of NW and SE New Mexico as Regional Facilities in order to allow for more timely approval of NORM disposal. Mr. Slosky advised that the Board could probably agree to blanket approval of the "Nonretrieved Flowlines and Pipelines" and they would not have to be permitted. However, downhole disposal would require a permit. The Board could approve one or several at a time, but the "several" would have to be individually identified as to location, etc. Jeff Ralston and Jayme Ward will discuss with the Board the possibility of advising the Board of downhole disposal after the fact, such as on a quarterly basis. Bill advised that the Board wishes to be kept advised as to what we are doing on the taskforce. Bill also advised that the Board charges fees for transportation and disposal permitting.

      Taskforce members believe there is some doubt as to whether the RMLLRWC has jurisdiction over NORM. Jeff Ralston and Jayme Boone Ward will review other Compacts across US as to their handling of NORM. They will talk with Mr. Slosky to discuss this jurisdiction issue. The Board feels that it has jurisdiction over NORM. Bill Floyd will also talk to Mr. Ed Kelly of the Environmental Department, who is New Mexico's representative on the Board, to get his feelings as to the jurisdiction of the Board over NORM.
   C. RCRA exemption for NORM - Jayme Boone Ward was unable to attend the meeting and present a brief on her investigation into this issue. This will be done at the next meeting. It continues to be the opinion of everyone that NORM is not a hazardous waste under Title C of RCRA and the EPA agrees that the E&P exemption covers NORM.

D. Timing of Taskforce work - the NMOCD needs the final Taskforce draft by 3-1-96 in order to have it ready for the April 11, 1996 hearing. The draft will be mailed out and comments accepted from mailing list members for one week. The NMOCD attorneys will put it into the proper format and review it. The draft will then be published in the New Mexico Register at least 21 days in advance of the 4-11-96 hearing.

4. The Taskforce then began to wordsmith the latest draft of the rule.

A. It was determined that the rule needed a PURPOSE section at the first that tied it to the Environmental Improvement Board (EIB) NORM regulation and discussed what the rule was intended to do. Roger Anderson and Ned Kendrick will prepare the PURPOSE and get it to Frank Gray by 1-17-96 for inclusion in the next draft.

B. Roger Anderson advised that the NMOCD would add such 'Definitions" as required by this rule to the General Definition Section in the Oil Conservation Division Rules. It was determined that 'Regulated NORM" needed to be added to that definition list and others will be added as necessary.

C. Nonretrieved flowlines and pipelines - This section was reviewed and accepted with minimal changes. The changes will be made and presented in the next draft before the 2-1-96 meeting. This section became Section II since PURPOSE was added.

D. Commercial and Centralized Facilities - This section had been left for future consideration; however, upon further thinking it was determined that this section could be handled by stating that an application can be made to NMOCD for this type of disposal and that a hearing will be held in every case. In addition operator will have to comply with all of Rule 711 and the hearing application will have a few requirements specific to Regulated NORM. Roger Anderson, Mark Ashley and David Catanach will write this Section and get it to Frank Gray by 1-17-96 for inclusion in the next draft. This is now Section III.

E. Downhole Disposal in Wells to be Plugged and Abandoned - this section was reviewed and accepted with minimal changes. The changes will be made and presented in the next draft before the 2-1-96 meeting. This is now Section IV.

F. Injection - The Taskforce reviewed the draft rule and David Catancah's comments and made several changes to this section. A concern was raised that injection of Regulated NORM should only be done in salt water disposal wells and not in enhanced recovery wells. The concern was that the NORM material would be recirculated to the surface by producers. Jeff Ralston will present a paper at the next meeting reflecting that the NORM will not increase since there is an equilibrium condition in the

reservoir that is controlling the releasing of radionuclides in the produced water. There was some discussion on the need for abandonment of a well that had been used for NORM injection. Raye, Jeff and Frank will work on this item and include the revised language in the next draft. There were several changes made to this subsection and they will be made and reflected in the next draft to be circulated prior to the 2-1-96 meeting.

Considerable thought is still being given to the subsection on 'Injection above fracture pressure". It was determined that the NMOCD would be able to consider this item if it was always taken to hearing. This will be the condition presented in the rule. In addition, several items will be required to supplement the C-108 application and hearing request. Raye Miller, Jeff Ralston and Frank Gray will write this section and present it in the next draft to be circulated prior to the 2-1-96 meeting.

G. Notification - This section VI has been added as a result of the 12-13-95 meeting. It was reviewed and accepted as written.

5. Tasks and assignments -

A. Jeff Ralston and Jayme Boone Ward will research other compacts and talk to Mr. Slosky of the Board to discuss jurisdiction over NORM and the possibility of after the fact permitting of disposal.
B. Bill Floyd will meet with Mr. Ed Kelly to discuss jurisdiction of NORM by the Board.
C. Jayme Boone Ward will present a brief of her review of the RCRA exemption for NORM.
D. Roger Anderson and Ned Kendrick will prepare a 'PURPOSE" section for inclusion in draft.
E. Roger Anderson, Mark Ashley and David Catanach will write a section on "Commercial and Centralized Facilities" for inclusion in the draft.
F. Jeff Ralston will present a paper on the condition of equilibrium in the reservoir and the impact that injection of NORM in enhanced recovery wells would have on NORM in produced fluids.
G. Raye Miller, Jeff Ralston and Frank Gray will rewrite the item on well abandonment after injection and include in the draft.
H. Raye Miller, Jeff Ralston and Frank Gray will write a new section on 'Injection above Fracture Pressure" and include it in the new draft.

6. The next meeting of the NORM Disposal Taskforce will be 2-1-96 at 9:00AM in the NMOCD hearing room in Santa Fe.

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1-16-96

Frank Gray

NORM TASK FORCE MEETING

1/11/96 - Albuquerque

Ned Kendrick	Montgomery & Andrews	(505) 986-2577
John Andersen	Conoco	915-686-5443
Mark Schmidt	NM State Land Office	505-827-5738
Mark Ashley	NMOCD	(505) 827-7155
David Catanach	NMOCD	(505) 827-8184
Roger Anderson	NMOCD	(505) 827-7152
Frank Gray	Texaco	505-688-2972
Raye Miller	Marbob	505-748-3303
Bill Floyd	NMOCD	(505) 827-1564
Gary Stephens	BLM	(505) 438-7451
Ruth Andrews	NMOGA	(505) 982-2898
Jeff Ralston	Exxon	(713) 656-7208

NORM DISPOSAL TASKFORCE
MINUTES 2-1-96

1. The meeting was called to order by Chairman Ned Kendrick at 9:00 AM in the NMOCD hearing room.

2. The minutes from the January 11, 1996 meeting were approved as submitted.

3. Review of old business:

   A. Jeff Ralston presented a paper he had prepared concerning the jurisdiction over NORM by the Compacts across the United States. In summary he found that Congress did not intend NORM to be under the jurisdiction of the Compacts; however, the Compacts could write their charters and interpret them as they saw fit. The Rocky Mountain Low Level Radioactive Waste Compact (RMLLRWC) has interpreted that NORM is under its jurisdiction. No other Compact has ruled that NORM is under its jurisdiction. This Taskforce cannot require the Board to give up its asserted jurisdiction over NORM except through litigation. In the absence of litigation, we will have to proceed to put NORM regulations in place and the regulated community will have to deal with both the regulatory bodies.

   Any effort to work on this jurisdictional issue should probably be handled by NMOGA. The Taskforce encourages NMOGA to approach the Rocky Mountain Low Level Radioactive Waste Board (Board) to try to get this issue clarified. The Board would have to agree to any revisions in the RMLLRWC and go to the three state legislatures for approval.

   The paper presented by Jeff will be a part of the Taskforce record.

   Jayme Boone Ward spoke to individuals involved with other Compact agencies as part of the effort to determine if the Board has jurisdiction over NORM. Her letter to Jeff Ralston provides the basis for part of the discussion in his paper and will be a part of the Taskforce record.

   Bill Floyd got additional information on the possibilities for authorization by the Board of NORM disposal while we are waiting on the approval of the exemptions by the Board. Mr. Slosky, Executive Director of the Board, would not agree to approval of P&A disposals after the fact or to the granting of an overall classification of Southeast or Northwest New Mexico as a "Regional Facility". The Board would consider looking at a package of several wells at a time; however, each would have to be clearly identified as to location and would be classified as a "Regional Facility".

B. Jayme Boone Ward presented her brief of research done to review the RCRA exemption for NORM. In summary, EPA agrees that NORM is exempt from the requirements of Subtitle C of RCRA. Jayme's brief on this research will be a part of the Taskforce record.

C. Jeff Ralston presented a one page document concerning the disposal of NORM in Enhanced Oil Recovery wells. The paper stated that it is possible but very unlikely that the disposal of NORM in an EOR injection well could have an impact on the radiation readings at surrounding producing wells. The small amount of NORM (radium) to be disposed in relation to the radium being released naturally by the uranium and thorium already in the reservoir is so small that no additional environmental risk is created. Jeff's paper will be a part to the Taskforce record.

It was determined that a new section would be added to the OCD rule to cover disposal in EOR injection wells.

4. The Taskforce then began a line by line review of the draft proposed OCD rule. Mr. Chris Shey's comments of January 25, 1996 were considered as we went through the various parts of the draft. Numerous changes were made to the draft which will be reflected in the new draft to be distributed before the next meeting.
   A. The new "PURPOSE" section of the draft was reviewed and accepted with minimal changes.
   B. The "Nonretrieved Flowlines and Pipelines" Section was reviewed and found to be acceptable with minimal changes, such as changing the terminology "survey results" to "radiation surveys".
   C. Commercial and Centralized Facilities - This section was reviewed and modified to change the term "readings" to "radiation survey readings". Also, a new paragraph was added to address operating procedures associated with this type of facility.
   D. Downhole Disposal in wells to be Plugged and Abandoned - This section was reviewed and several changes were made to address minor word changes.
   E. Injection - This section was reviewed and changed substantially.
      1. The first subpart was changed from "Injection Wells" to "Disposal Wells". There was considerable wordsmithing but no major changes.
      2. A new subpart was added as V.B entitled "Injection in EOR Injection Wells". This type disposal can only be done following approval by OCD after notice and hearing.
      3. The subsection on "Injection Above Fracture Pressure" was wordsmithed but not substantially changed.

4. Injection in Commercial Disposal Facilities - references to the NMED subparts were changed to comply with the New Mexico Administrative Code.

F. Notification - This section was modified to allow 20 days for comments and request for hearing instead of 15 days. Also, the requirement that the Director should only consider comments from "affected and notified parties" has been withdrawn.

5. Tasks and assignments:

A. A group initially consisting of Ned, Jeff, and Jayme will work with NMOGA to begin looking at legislative changes needed to the Compact to eliminate the jurisdiction over NORM. It was recognized that this effort is outside of the OCD Director's charge to the Taskforce and consequently will not be addressed further by the Taskforce.

B. Frank Gray will revise the Taskforce's draft proposed disposal rule to reflect revisions made at this meeting and get the draft to Roger Anderson for distribution prior to the next Taskforce meeting.

C. Ned Kendrick and Jayme Boone Ward will prepare a rough draft of a Taskforce Report that, when final, will be presented to the Oil Conservation Commission along with the proposed rule. This draft report will be distributed prior to the next Taskforce meeting.

6. The next meeting of the NORM Disposal Taskforce will be 2-20-96 at 9:00AM in the NMOCD hearing room in Santa Fe, New Mexico.

Frank Gray

NORM TASK FORCE MEETING
2/1/96 - Santa Fe

Ned Kendrick	Montgomery & Andrews	(505) 986-2527
Roger Anderson	NMOCD	(505) 827-7152
David Catanach	NMOCD	(505) 827-7154
Jeff Ralston	Exxon	(713) 656-5235
GARY STEPHENS	BLM	(505) 438-7451
SAM E. Christy	Phillips Petroleum	915-368-1620
MARK SCHMIDT	NM SLO	505/827-5738
Bill Floyd	NMED	(505) 827-1564
FRANK GRAY	TEXACO E&P	915 688-2972
Jamye Boone Ward	El Paso Natural Gas Co	915 541-3071

NORM DISPOSAL TASKFORCE
MINUTES 2-20-96

1. The meeting was called to order by Chairman Ned Kendrick at 9:00AM in the NMOCD hearing room.

2. The minutes from the February 1, 1996 meeting were approved as submitted.

3. The Taskforce was advised that Jeff Ralston of Exxon would not be able to attend this or future meetings since he has been assigned to a new job. It is hoped that Jeff will be able to attend the hearing on April 11, 1996.

4. The Taskforce began a line by line review of the latest draft of the Regulated NORM disposal rules.
   A. It was decided that an instruction paragraph should be added at the beginning to instruct that the definition of 'Regulated NORM" needs to be added to the Division's General Rules at 19 NMAC 15.A.7.
   B. Purpose - unchanged
   C. Nonretrieved flowlines and pipelines - very little wordsmithing.
   D. Commercial and Centralized Facilities - Title was changed to 'Commercial or Centralized Surface Waste Management Facilities to more clearly differentiate from commercial salt water injection facilities. It was clarified that the operator of such a facility must obtain approval for the disposal of NORM in the facility through the Rule 711 permit process. Either an existing Rule 711 permit must be modified to NORM disposal or a new Rule 711 permit must be obtained for such disposal. Also, the facility operator must obtain a Form C-138 approval from OCD to receive each shipment of NORM.
   E. Downhole Disposal in Wells to be plugged and Abandoned - unchanged
   F. Injection - some wordsmithing but no substantial changes.
   G. Notification - Title was changed to "Additional Notification" to indicate that it concerns notification above and beyond the individual sections.

   The draft rule will be presented to Mr. LeMay on March 1, 1996. The NMOCD will then have the rule formatted and prepared for publication on March 21, 1996 in the New Mexico register. The Taskforce understands that it will have the opportunity to review the reformatted rule prior to its publication. The hearing will be on April 11, 1996.

5. The Taskforce then began to consider the first draft of Jamye's and Ned's NORM Disposal Taskforce Report. This Report will discuss the Taskforce's rationale in arriving at the draft Regulated NORM Disposal rule. It will serve to aid the Oil Conservation Commission to understand the proposed rule and how it was drafted. Ned covered the sections on the taskforce, meetings, regulatory background, taskforce procedure, jurisdiction of the OCD, and taskforce recommendations to

the OCC. These sections were wordsmithed. Jamye covered the sections of the draft rule as listed in B through G above. These sections were wordsmithed and it was determined that they would be shortened and redundancies with the rule would be eliminated. Ned and Jamye will take the wordsmithed drafts and submit a new draft for Taskforce review during the week of February 26, 1996. It is

planned that the report will be presented to Mr. LeMay along with the draft rule on March 1, 1996.

6. Tasks and assignments -
   A. Frank Gray will get Jeff Ralston's report on injection in EOR wells for the record.
   B. Frank Gray will revise the Taskforce's draft proposed rule and get it to Ned for final review by 2-21-96. Following that review Frank will mail a disk of the rule to Roger Anderson so that the OCD can begin its formatting work.
   C. Roger Anderson will have possession of the original of the draft rule and will begin the formatting phase of the process.
   D. Ned Kendrick and Jamye Boone Ward will work on the second draft of the Taskforce report and get it to the Taskforce for comments by early in the week of February 26, 1996.

7. The next meeting of the Taskforce will be on April 10, 1996 at 3:00PM in the NMOCD hearing room to prepare for the hearing on April 11, 1996.

Frank Gray

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RFG/s 2-21-96

NORM TASK FORCE MEETING

2/20/96 - Santa Fe

Ned Kendrick	Montgomery & Andrews	(505) 986-2527
Roger Anderson	OCD	(505) 827-7152
Raye Miller	Marbob Energy	505 748-3303
GARY STEPHENS	BLM	505 438-7451
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SUBPART 14

NATURALLY OCCURRING RADIOACTIVE MATERIALS (NORM) IN THE OIL AND GAS INDUSTRY

1400. PURPOSE. This Subpart establishes radiation protection standards for the possession, use, transfer, transport, storage and disposal of naturally occurring radioactive materials (NORM) associated with the oil and gas industry, and which are not subject to regulation under the Atomic Energy Act of 1954, as amended. Nothing in these regulations relieves a licensee from abiding by the regulations of the New Mexico Water Quality Control Commission, other applicable state and federal laws and regulations including those of the New Mexico Oil Conservation Commission , or the terms and conditions of the Rocky Mountain Low Level Radioactive Waste Compact. [8-2-95]

1401. SCOPE.

A. The regulations of this Subpart and other applicable subparts of this Part apply to any person who engages in the extraction, transfer, transport, storage or disposal of NORM, or in the enhancement of NORM, in the oil and gas industry by altering the chemical properties, physical state or concentration of the NORM or its potential exposure pathways to humans. [8-2-95]

B. The regulations of this Subpart and other applicable subparts of this Part also apply to sludges and scale deposits in tubulars and equipment and to scale deposits from cleaning added to the environment. The regulations of this Subpart and other applicable Subparts of this Part also apply to NORM deposits in soil, water and the environment unless otherwise regulated. [8-2-95]

C. The regulations of this Subpart and other applicable subparts of this Part also address Regulated NORM management, transfer, storage, and disposal with regard to facilities involved in storage and-or cleaning of tubulars and equipment. [8-2-95]

1402. DEFINITIONS. As used in this Subpart:

A. "Accessible point" means any external location on a piece of equipment, or place on a facility where NORM or Regulated NORM may be present. This includes any internal location which can be reached through an opening, by removal of a plate, lid or hatch or which is made accessible as a result of structural modification; [8-2-95]

B. "Centralized facility" means a facility that is operated by one person or more than one person under an operating agreement for the purpose of disposing of Regulated NORM generated exclusively by that person or persons. This definition does not include plugged and abandoned wells and-or Underground Injection Control (UIC) wells used for disposal of Regulated NORM as provided in §1407. E. 3. and 4; [8-2-95]

C. "Commercial facility" means any facility that receives compensation to receive, store, treat and-or dispose of Regulated NORM pursuant to applicable Department and Division rules and regulations; [8-2-95]

D. "Decontamination" means the removal of media containing Regulated NORM from equipment or facilities solely for the intended purpose of reducing levels of radiation to levels below Regulated NORM levels in order to release equipment, materials, or land for unrestricted use in accordance with these regulations; [8-2-95]

E. "Department" means the New Mexico Environment Department or its designated representative(s); [8-2-95]

F. "Division" means the New Mexico Oil Conservation Division or its designated representative(s); [8-2-95]

G. "Equipment" means tubulars (i.e., pipe), wellheads, separators, tanks, condensers, or any other related apparatus that have been in contact with produced gas or fluids associated with the oil and gas industry; [8-2-95]

H. "Facility" means any land or structures, including appurtenances, and improvements on land or water used in or related to the oil and gas industry; [8-2-95]

I. "General environment" means the total terrestrial, atmospheric, and aquatic environments outside the boundary of a facility; [8-2-95]

J. "Naturally occurring radioactive material (NORM)" means any nuclide which is radioactive in its natural physical state (i.e., not manmade) but does not include byproduct, source or special nuclear material; [8-2-95]

K. "Oil and Gas Industry" means any person(s) engaged in exploring, producing, gathering, trading, servicing, supplying, refining, and transporting of crude hydrocarbons, or their by-products and waste, or facilities associated with such activities; [8-2-95]

L. "Produced water" means those waters produced in conjunction with the production of crude oil and-or natural gas and commonly collected at field storage, processing or disposal facilities, including, but not limited to: lease tanks, commingled tank batteries, burn pits, LACT units, dehydrators and community or lease salt water disposal systems, and which may be collected at gas processing plants, pipeline drips and other processing or transportation facilities; [8-2-95]

M. "Product" means something produced, made, manufactured, refined, or beneficiated; [8-2-95]

N. "Regulated NORM" means NORM contained in any oil-field soils, equipment, sludges or any other materials related to oil-field operations or processes exceeding the radiation levels specified in §1403; [8-2-95]

O. "Storage" means the collection and containment of Regulated NORM for the purpose of and prior to disposal. Storage does not include the accumulation of Regulated NORM in operating vessels; and [8-2-95]

P. "Treatment" means any commercial method, technique, or process, including neutralization, designed to change the physical, chemical form or composition of Regulated NORM. This definition does not refer to treatment as defined in the Resource Conservation Recovery Act (RCRA), nor does it refer to processing of Regulated NORM for disposal in plugged and abandoned wells. [8-2-95]

1403. EXEMPTIONS.

A. For release for unrestricted use, persons who receive, possess, use, process, transfer, distribute, transport, store or dispose of NORM are exempt from the requirements of these regulations if: the NORM present is at concentrations of 30 picocuries per gram or less of radium 226, above background, or 150 picocuries per gram or less of any other NORM radionuclide, above background, in soil, in 15 cm layers, averaged over 100 square meters. Samples should be taken if gamma radiation readings (μR/hr) are equal to or exceed twice background readings when surveyed at a distance of 1 cm from the surface of the soil, in accordance with Department guidelines. [8-2-95]

B. The possession and use of natural gas and natural gas products and crude oil and crude oil products as fuels are exempt from the requirements of this Subpart. [8-2-95]

C. NORM not otherwise exempted and equipment from oil, gas, and water production containing NORM are exempt from the requirements of this Subpart if the maximum radiation exposure reading at any accessible point does not exceed 50 microroentgens per hour (μR/hr) (0.5 μSv/hr), including background radiation levels. Sludges and scales contained in oil, gas and water production equipment are exempt from the requirements of this Subpart if the maximum radiation exposure reading within 1 cm of the surface of the sludge or scale does not exceed 50 microroentgens per hour (50 μR/hr) (0.5 μSv/hr), including background radiation levels. If the radiation readings exceed 50 μR/hr (0.5 μSv/hr), removable sludges and scales are exempt from the requirements of these regulations if the concentration of Radium 226, in a representative sample, does not exceed 30 picocuries per gram. [8-2-95]

D. NORM not otherwise exempted and equipment from gas processing, fractionation, and dry gas distribution containing NORM are exempt from the requirements of this Subpart if the removable surface NORM contamination does not exceed 1000 dpm/100 cm^2 and otherwise conforms with the requirements of §1403. A. Removable scale from gas processing fractionating,

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and dry gas distribution is exempt from the requirements of this Subpart if the concentration of Lead 210, in a representative sample, does not exceed 150 picocuries per gram. [8-2-95]

E. Produced water is exempt from the requirements of these regulations if it is reinjected into a Class I or Class II Underground Injection Control (UIC) well permitted by the Division and-or stored or disposed in a double, synthetically lined surface impoundment permitted by the Division. [8-2-95]

1404. RADIATION SURVEY INSTRUMENTS.

A. Radiation survey instruments used to determine exemptions pursuant to §1403 C shall be capable of measuring from 1 microroentgen per hour through at least 500 microroentgens per hour. Laboratory analytical instrumentation used in accordance with §1406 must have a radiation detection system with an efficiency such that it is capable of measuring 1000 dpm/100 cm^2 on filter paper. The efficiency of portable survey instruments must be such that when cpm is equated to dpm, the 1000 dpm/100cm^2 limit is not exceeded. [8-2-95]

B. Radiation survey instruments used to make surveys required by this Subpart shall be calibrated to an appropriate standard and operable according to Department guidelines for operability checks on a regular basis. [8-2-95]

C. Each radiation survey instrument shall be calibrated: [8-2-95]

1. by a qualified person or by the manufacturer provided the person or the manufacturer is certified by the Department; [8-2-95]

2. at intervals not to exceed twelve (12) months and after each instrument servicing other than battery replacement; and [8-2-95]

3. to demonstrate an accuracy within plus or minus 20 percent. [8-2-95]

D. Records of required calibrations shall be maintained for Department inspection for five years after the calibration date. [8-2-95]

1405. PROTECTION OF WORKERS DURING OPERATIONS.

A. All general and specific licensees shall conduct operations: [8-2-95]

1. in compliance with the standards for radiation protection set forth in Subparts 4 and 10, except for releases of radioactivity in effluents, which shall be regulated under §1406, and disposal, which shall be regulated under §1407, and; [8-2-95]

2. pursuant to a Worker Protection Plan prepared according to applicable Department guidelines and maintained by the licensee and made available upon request of employees or representatives of the Department. The licensee shall post official notices to employees in areas where employees will have sufficient access to and notification of the Plan. [8-2-95]

B. The Department will prepare and issue worker protection guidelines and notices to employees no later than six (6) months from the effective date of these regulations. The Worker Protection Plan prepared by the licensee pursuant to §1405 A 2 shall be no less stringent than the Department's worker protection guidelines. [8-2-95]

C. Licensees shall incorporate hazard identification and training into their hazard communication programs as required by the Occupational Safety and Health Administration (OSHA) or by the Board pursuant to the Occupational Health and Safety Act, and as required under Subpart 10 for personnel working on or around equipment and materials that contain Regulated NORM. Regulated NORM material that has been removed from equipment and containerized shall be labeled as per the requirement of §430 and §431. [8-2-95]

D. Licensees operating at more than one location may prepare a single Worker Protection Plan to cover all facilities and operations in New Mexico, provided that the Plan is readily accessible to all employees. [8-2-95]

E. The total radiation dose in any one year to any General Licensee employee from Regulated NORM shall not exceed the standards for exposure to members of the public as set forth in Subpart 4. Employees engaged in an activity subject to a Specific License as required by §1411, shall not exceed the limits for radiation workers as specified in Subpart 4. Any worker engaged in an activity subject to a Specific License and who is likely to receive in one year an accumulative dose in excess of 500 mrem (5 mSv) shall be monitored. [8-2-95]

1406. PROTECTION OF THE GENERAL POPULATION FROM RELEASES OF RADIOACTIVITY.

A. All licensees shall conduct operations in compliance with the standards for radiation protection set forth in Subpart 4 and in such a manner that concentrations of radioactive materials which are released to the general environment do not result in an annual dose exceeding 100 mrem (1 mSv) in a year. The dose in any unrestricted area from external sources shall not exceed 2 mrem (20 μSv) in any one hour. If the licensee permits members of the public to have access to restricted areas the limits for members of the public continue to apply to those individuals. [8-2-95]

B. All licensees shall assure that any equipment released for unrestricted use shall not exceed the exposure limits specified in §1403. [8-2-95]

C. The licensee shall provide the recipient of transferred equipment, the inside of which is not accessible through any opening, plate, lid or hatch, with a notice that required surveys have

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been performed, that equipment meets the standards of §1403 C or D, and that further surveys may be necessary if the equipment is structurally modified following transfer. The licensee shall retain copies of all notices of transfer. [8-2-95]

1407. DISPOSAL AND TRANSFER OF REGULATED NORM FOR DISPOSAL.

A. Disposal of Regulated NORM on or near the surface of the ground shall be done pursuant to a general license issued under §1410 and Subpart 13 and pursuant to NMOCD Rule 711. A general licensee may blend or disc Regulated NORM contaminated soils in place provided that: [8-2-95]

1. the soils were contaminated at that site and prior to promulgation of this Subpart; and [8-2-95]

2. the limits established in §1403 A are met. [8-2-95]

B. Disposal of Regulated NORM in nonretrieved flowlines and pipelines, in plugged and abandoned wells or by deep-well injection shall be done pursuant to a general license issued under §1410 and pursuant to applicable Division rules and regulations. [8-2-95]

C. All licensees shall store, transfer and-or dispose of Regulated NORM in accordance with the Worker Protection Plan required under §1405. All requirements of this Worker Protection Plan shall be available for inspection by the Department. [8-2-95]

D. Regulated NORM shall only be disposed by the methods enumerated below, except that the Department will consider and approve alternative methods of disposal if the applicant demonstrates that such alternative method(s) will protect the environment, public health and fresh waters, and otherwise is consistent with this Subpart, with other provisions of this Part and with applicable Division rules and regulations. [8-2-95]

1. Disposal in Nonretrieved Flowlines and Pipelines. Nonretrieved flowlines and pipelines which are buried are authorized by the Department to be left in place in accordance with Division rules and regulations. [8-2-95]

2. Disposal at Commercial and Centralized Facilities. Before a commercial or centralized facility may accept Regulated NORM for treatment and-or disposal, the operator of the facility shall obtain both a specific license issued by the Department pursuant to the requirements of this Subpart and a permit from the Division, and must be in compliance with Subpart 13. [8-2-95]

3. Disposal in Plugged and Abandoned Wells. The Department allows downhole disposal of NORM solids and NORM contaminated equipment in wells which are to be plugged and abandoned, provided such procedures are performed in a manner to protect the environment, public health, and fresh waters; are conducted in accordance with applicable Division rules and regulations;

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and occur below the lowermost underground source of drinking water. The allowable form shall be media-laden fluid with a minimum density of nine (9.0) pounds per gallon and with the allowable volume for disposal dependent on the plug location required for a specific well. [8-2-95]

4. Disposal by Injection. The Department allows the injection of Regulated NORM into Underground Injection Control (UIC) Class I nonhazardous and Class II wells pursuant to NMOCD rules and regulations. All UIC Class I nonhazardous and Class II injection wells shall be permitted by the Division. [8-2-95]

5. Other Disposal Methods. Each person subject to general or specific license requirements shall manage and dispose of Regulated NORM: [8-2-95]

a. in accordance with the applicable requirements of Subparts 4 and 10; [8-2-95]

b. in accordance with the applicable requirements of the U.S. Environmental Protection Agency for disposal of such wastes; [8-2-95]

c. by transfer of the wastes for disposal to a land disposal facility licensed by the U.S. Nuclear Regulatory Commission, an Agreement State, or a Licensing State; or [8-2-95]

d. in accordance with alternate methods authorized in this Subpart or by the Department in writing upon application or upon the Department's initiative and in accordance with Division Regulations. [8-2-95]

1408. RADIATION SURVEY REQUIREMENTS.

A. Persons subject to the general license established in §1410 A shall conduct radiation surveys of equipment and facilities in their control or possession and maintain that information on file. Surveys would be conducted for all of the following events. [8-2-95]

1. Prior to working on facilities or equipment where potential release of regulated NORM could occur or where workers could be exposed to regulated NORM. [8-2-95]

2. Prior to any transfer of equipment to another operator, the general public, or a salvage firm. [8-2-95]

3. Prior to the movement or removal of equipment from any facility or facility reclamation. [8-2-95]

4. At facilities where pipe has been cleaned. [8-2-95]

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5. At facilities where materials are known to have been spread, spilled or stockpiled. [8-2-95]

B. Surveys required by this Subpart shall be conducted using instruments that meet the requirements of §1404. [8-2-95]

C. Surveys required by this Subpart shall be performed pursuant to guidelines issued by the Department and by persons who possess the knowledge and-or training to perform such surveys pursuant to Department and Division Guidelines. [8-2-95]

1409. REQUIREMENTS FOR STORAGE OF REGULATED NORM.

A. Storage of Regulated NORM, whether under a general or specific license, will be done in such a manner as to prevent, to the extent practicable, release of NORM to unrestricted areas, and otherwise to protect human health and the environment. [8-2-95]

B. Storage of Regulated NORM will be done in such a manner as to comply with the limits set forth in §413 and §425, including those specified in Appendix B, Table II of Subpart 4, of the New Mexico Radiation Protection Regulations. [8-2-95]

C. Regulated NORM will be stored at all times: [8-2-95]

1. In accordance with the recommended practices of Section 6 of the American Petroleum Institute's Bulletin E2 (edition of April 1, 1992, or most recent edition), including practices specified for facility security, management of uncontained NORM, containerization and labeling, signage and record keeping, except that the dose limits specified in Section 6 or Bulletin E2 shall not apply; [8-2-95]

2. NORM storage facilities must be designed to minimize or prevent release of Regulated NORM to the environment; and [8-2-95]

3. In accordance with applicable Department guidelines. [8-2-95]

D. Licensing of Regulated NORM Storage Facilities: [8-2-95]

1. Effective August 2, 1995, storage of Regulated NORM for longer than one year must be under a specific license unless the Department grants an extension of a general license issued pursuant to §1410 A. Such an extension must be requested by the licensee on an annual basis and maybe granted by the Department on an annual basis, not to exceed 10 years of storage under a general license; and [8-2-95]

2. In granting an extension of a general license for storage of Regulated NORM, the Department must certify that the licensee is in compliance with Subparts A., B., and C., of §1409

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and has a valid reason or reasons why the Regulated NORM under his or her ownership will not be disposed within the next year. Factors the Department should consider in determining whether the licensee has a valid reason or reasons for receiving an extension include, but are not limited to, the volume and radioactivity of the Regulated NORM, and-or the location of the storage facility and its proximity to populated areas or sensitive environments. [8-2-95]

E. Storage of Regulated NORM under a specific license will be done in accordance with the requirements of this Subpart, any other applicable requirements of this Part and any other conditions as may be imposed by the Department to ensure compliance with these regulations. [8-2-95]

1410. GENERAL LICENSE.

A. A general license is hereby issued to extract, receive, possess, own, use, process and transport Regulated NORM without regard to quantity. A general license is hereby issued to store Regulated NORM in accordance with the requirements of §1409, for one year or less and to dispose of Regulated NORM in plugged and abandoned wells or Class II UIC wells pursuant to §1407 D 3 and 4. A general licensee may, as part of routine operations, perform maintenance work on equipment that contains Regulated NORM provided that work practices conform to the Worker Protection Plan and that employee exposures prescribed in §1405 and Subpart 4 are not exceeded. [8-2-95]

B. A general license does not authorize the manufacture or distribution of products containing Regulated NORM, does not allow the transfer for disposal of Regulated NORM between general licensees, and does not authorize the storage of Regulated NORM for compensation or other commercial purposes. [8-2-95]

C. Facilities and equipment containing Regulated NORM shall not be released for unrestricted use. [8-2-95]

D. No generally licensed facility, including plugged and abandoned wells used for NORM disposal, shall be transferred for unrestricted use where the concentration of radium-226 in soil averaged over 100 square meters exceeds 30 pCi/g above background in 15 cm layers. [8-2-95]

E. Equipment containing Regulated NORM may be released for maintenance and-or overhaul provided the recipient is specifically licensed to perform such activity. [8-2-95]

F. The transfer of Regulated NORM from one general licensee to another general licensee is authorized by the Department provided that the equipment and facilities containing Regulated NORM are to be used by the recipient for the same purpose or similar service. [8-2-95]

G. Transfers of Regulated NORM do not relieve the transferring general licensee from the responsibilities of surveying pursuant to these requirements, informing the receiving general

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licensee of the results of such surveys, and maintaining records pursuant to these requirements. [8-2-95]

H. Record keeping for NORM survey data is to be maintained for inspection by the Department. [8-2-95]

I. The landowner shall be notified prior to on-site mixing of soil pursuant to §1407.A. [8-2-95]

1411. SPECIFIC LICENSES.

A. Unless otherwise exempted under the provisions of §1403, or licensed under the provisions of Subpart 3 of the regulations, the manufacturing and distribution of any material or product containing Regulated NORM shall be specifically licensed pursuant to the requirements of this Subpart or pursuant to equivalent regulations of another state. [8-2-95]

B. The decontamination of equipment or facilities containing Regulated NORM shall be performed only by persons specifically licensed. [8-2-95]

C. Persons conducting the following activities involving equipment or facilities containing Regulated NORM must be specifically licensed to: [8-2-95]

1. dispose of or treat the resulting Regulated NORM unless exempted under this Subpart; [8-2-95]

2. transfer Regulated NORM for long-term storage, treatment and-or disposal; or [8-2-95]

3. after August 2, 1995, store Regulated NORM in accordance with the requirements of §1409 for longer than one year. [8-2-95]

1412. REQUIREMENTS FOR THE ISSUANCE OF SPECIFIC LICENSES. The licensee shall comply with the provisions of §308. [8-2-95]

1413. FILING APPLICATION FOR SPECIFIC LICENSES.

A. The licensee shall comply with the provisions of §307 A-F. [8-2-95]

B. An applicant for a specific license shall comply with the Public Notification requirements in §310. [8-2-95]

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1414. CONDITIONS FOR ISSUANCE OF SPECIFIC LICENSES.

A. The licensee shall comply with the provisions of §316 and §317 A.-C. [8-2-95]

B. An application for a Specific License to decontaminate equipment or land not otherwise exempted under the provisions of §1403 will be approved if: [8-2-95]

1. the applicant satisfies the requirements specified in §1413; and [8-2-95]

2. the applicant has adequately addressed the following items: [8-2-95]

a. procedures and equipment for monitoring and protection of workers; [8-2-95]

b. an evaluation of the radiation levels and concentrations of contamination expected during normal operations; [8-2-95]

c. operating and emergency procedures, including procedures for waste reduction and quality assurance of items released for unstricted use; and [8-2-95]

d. a method of managing the Regulated NORM removed from contaminated equipment and facilities. [8-2-95]

C. Each person licensed by the Department pursuant to this Part shall have met the financial surety requirements of §311 E. [8-2-95]

D. Each person licensed by the Department pursuant to this Part shall manage and dispose of wastes containing Regulated NORM in accordance with §1407. [8-2-95]

1415. MODIFICATION, EXPIRATION AND TERMINATION OF LICENSES. The licensee shall comply with the provisions in §322. [8-2-95]

1416. RENEWAL OF LICENSES.

A. Applications for renewal of specific licenses shall be filed in accordance with §1413. [8-2-95]

B. In any case in which a licensee, not less than 30 days prior to expiration of an existing license, has filed an application in proper form for renewal or for a new license authorizing the same activities, such existing license shall not expire until final action by the Department. [8-2-95]

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1417. AMENDMENT OF LICENSES AT REQUEST OF SPECIFIC LICENSEE. Applications for amendment of a specific license shall be filed in accordance with §320, and shall specify the respects in which the licensee desires the license to be amended and the grounds for such amendment. [8-2-95]

1418. ACRONYMS.

Bq/kg	Becquerels per kilogram
cm	centimeters
dpm	disintegrations per minute
LACT	Lease Automated Custody Transfer
NORM	Naturally Occurring Radioactive Material
P&A	Plugged and Abandoned
pCi/g	picocuries per gram
UIC	Underground Injection Control
µR/hr	microroentgens per hour
rem	roentgen equivalent man
mR/hr	milliroentgen per hour
RCRA	Resource Conservation Recovery Act
cpm	counts per minute
mSv	millisievert
µSv	microsievert
µSv/hr	microsievert per hour

[8-2-95]

1419. RECIPROCAL RECOGNITION OF LICENSES. Recognition of Reciprocal Licenses shall be done in accordance with §324. [8-2-95]

1420. - 1499. [RESERVED.]

Review of Rocky Mountain Low Level Radioactive Waste Compact Authority over Oil and Gas NORM

by Jeff Ralston
Exxon Co. USA

Purpose

Review enabling statutes, legislative history and other sources to determine the basis for the Rocky Mountain Low Level Radioactive Waste Compact's position regarding their authority to regulate oil and gas NORM.

Enabling Federal Statutes

The Atomic Energy Act of 1954

The Atomic Energy Act of 1954 (AEA) established the Atomic Energy commission (now the Nuclear Regulatory Commission) and established the Commission's responsibilities regarding the nations' development and utilization of atomic energy. The AEA gave the Commission authority over source material, special nuclear material, and by-product material. All these materials are related to the production of nuclear material for atomic energy and atomic weapons, that is material specifically separated, enriched or irradiated, either directly or indirectly, in the production of fissionable material (i.e., "man-made").

Low-Level Radioactive Waste Policy Act of 1980

The Low Level Radioactive Waste Policy Act of 1980 (LLWP Act) was passed to address a growing concern regarding the ultimate disposition of high and low level radioactive wastes being generated by the nuclear energy and nuclear weapons industries. The LLWP Act initially dealt with storage and disposal issues for high-level and low-level radioactive wastes. It passed both houses of Congress on December 13, 1980. In its final form, the LLWP Act only addressed low-level radioactive wastes (LLW).

The LLWP Act authorized States to enter into regional compacts in order to establish disposal facilities for "non-defense" LLW. The LLWP Act also authorized States to exclude wastes from States not participating in the compacts without violating the Supremacy or Commerce Clauses of the U.S. Constitution.

The LLWP Act defines the term "low-level radioactive waste" to mean

> *"radioactive waste not classified as high-level radioactive waste, transuranic waste, spent nuclear fuel, or by product material as defined under the Atomic Energy Act of 1954."*

Low-Level Radioactive Waste Policy Amendments Act of 1985

In 1985, Congress passed amendments to the LLWP Act in response to the failure of States and State compacts to develop new disposal sites before the January 1986 deadline established under the LLWP Act. The Act extended the access to the only three operating LLW sites for a period of seven years.

Section 3 of the 1985 Act states that:

> *"Each State shall be responsible for providing, either by itself or in cooperation with other States, for the disposal of...low-level radioactive waste generated within the State (other than by the Federal Government) that consists of or contains class A, B, or C radioactive waste as defined by section 61.55 of title 10, Code of Federal Regulations as in effect on January 26, 1983..." (emphasis added)*

The 1985 Act redefined the term "low-level radioactive waste" to mean:

> *"radioactive material that -*
>
> *(A) is not high-level radioactive waste, spent nuclear fuel, or byproduct material (as defined under the Atomic Energy Act of 1954); and*
>
> *(B) the Nuclear Regulatory Commission, consistent with existing law and in accordance with paragraph (A), classifies as low-level radioactive waste." (emphasis added)*

Title II of the 1985 Act also gave Congressional consent to the compact agreements for several regional compacts, including the Rocky Mountain Low-Level Radioactive Waste Compact.

Congressional Intent

Low-Level Radioactive Waste Policy Act of 1980

The Energy and Natural Resources Committee issued Senate Report 96-548 when they reported the original version of the LLWP Act of 1980 to the Senate. As mentioned above, the original bill dealt with high and low-level radioactive wastes. Much of this Senate report deals with high level wastes and the provisions in the original bill addressing these wastes.

There is also instructive discussion on the type of LLW which the Senate Committee was considering when they reported the bill. Beginning on page 14 of Senate Report 96-548:

> *"Low-Level Waste*
>
> *"During much of 1979 substantial public concern has been directed to the policy for management of low-level nuclear waste. As a result, problems associated with the disposal of low-level radioactive wastes from hospitals, universities, industrial manufacturing plants, and nuclear power plants have intensified and the case for review of this policy seems strong."*

The report goes on to describe the circumstances surrounding the shut-down of four of the six LLW disposal sites in the country and then continues:

> *"As a consequence, efforts may be approaching a critical stage for the continued disposal of approximately 3 million cubic feet per year of low-level waste generated in the United States.*
>
> *"Between 30 and 40 percent of the volume of low-level waste stems from medical use of isotopes to treat or diagnose illness...The nuclear activities in university research laboratories are aimed at basic understanding of physical, biologic and chemical processes and the education of students for a host of technical fields. In normal operation, there are small quantities of low-level radioactive wastes generated in nuclear power plants in systems to purify the water in reactor cooling systems."*

Low-Level Radioactive Waste Policy Amendments Act of 1985

The House Interior and Insular Affairs Committee and the House Energy and Commerce Committee issued House Report 99-314 to accompany the 1985 Act. As in the 1980 LLWP Act, Congress had a clear intent as to what they considered LLW. From page 16 of House Report 99-314:

> *"Low-level radioactive waste is generated from a variety of sources and comes in a variety of forms. Forms of such waste common to all generators include paper trash, used protective clothing, discarded glassware, tools, and equipment. In addition, each generator produces wastes reflective of their unique operations. For instance, nuclear power plants produce used chemical ion exchange resins, filters, lubricating oil and greases. Industrial users produce waste in the form of machinery parts, plastics and organic solvents. Hospitals and research institutions produce liquids and glass waste from an estimated 200 million nuclear medical procedures a year."*

Excerpts from the 1985 Act and the congressional record make it clear that Congress intended for the States (and compacts) to be responsible for LLW which were classified as Class A, Class B, and Class C LLW. The Nuclear Regulatory Commission (NRC) defines these classes of LLW in 10 CFR 61.55 (see attached). Class A wastes are the least radioactive and Class C are the most radioactive. The classifications are based on the levels of listed short-lived and long-lived radionuclides contained in the waste. Radium is not contained on either list, indicating that radium was not considered a component of LLW.

Analysis

The key definition in the 1985 Act involves 10 CFR 61; rules developed by the Nuclear Regulatory Commission (NRC) to regulate the land disposal of radioactive waste. These rules were published in the Federal Register on December 27, 1982 and went into effect on January 26, 1983. Congress specifically referenced this rule in Section 3 when establishing what LLW was and what the States and compacts were responsible for. Page 57453 of the December 27, 1982 Federal Register contains the NRC's interpretation of LLW relative to NORM:

> *"Several commentators wanted to know what to do with waste containing Radium-226, a radioisotope which is not currently listed. It appears that there are two types of radium wastes to be considered: (1) small concentrated sources of radium such as radiation sources or luminescent dials, and (2) wastes which contain small amounts of radium incidental to other radioisotopes, such as radium contained in wastes from uranium separation processes. The former is not subject to regulation by the Commission, since radium is a naturally-occurring isotope and is not included in the provisions of the Atomic Energy Act of 1954, as amended." (emphasis added)*

By the NRC's unambiguous interpretation, the radium (and any daughter isotopes) in oil and gas NORM is not LLW.

This agrees with the clear Congressional intent as excerpted above. No where is naturally occurring radioactive materials mentioned in any of the Congressional record. Medical uses, research, and nuclear power plants are mentioned as the primary sources of LLW. In fact, medical use is highlighted as accounting for 30 to 40 percent of the LLW generated in the country. The following analysis of the relative volumes of LLW and NORM indicates that NORM was not considered LLW when making this statement.

In April 1992, the Gas Research Institute (GRI) published a report titled, "Technical and Regulatory Issues Associated with Naturally Occurring Radioactive Materials (NORM) in the Oil and Gas Industry." Beginning on page 20 of this report, the GRI contractor analyzed the volume and activity of oil and gas NORM relative to that of NRC Class A,B, and C LLW and spent fuel. A comparison is shown below using EPA's estimate for the volume and activity of oil and gas NORM.

Quantity and Activity of Oil and Gas NORM Generated Annually Compared to LLW and Spent Fuel

Waste Description	Volume (ft^3)	Mass (tons)	Total Activity (Ci)	Activity/mass (pCi/g)
Spent fuel	1,800	620	360×10^6	639×10^9
LLW (All types combined	1,439,000	35,970	270,000	7,590,000
LLW / Class A	1,388,000	34,700	26,000	825,000
LLW / Class B	39,000	975	67,000	75,700,000
LLW / Class C	12,000	300	177,000	650,000,000
LLW / Greater than Class C	1,000	NA	400,000	NA
Oil and Gas NORM[1]	9,120,000	456,000	64	155[2]

The volume and the activity of oil and gas NORM are considerably out of line with LLW, especially considering that the oil and gas industry generates a small amount of NORM compared with most other industries which generate NORM. In the 1985 Act, Congress reserved 19.6 million cubic feet of capacity at the three operating LLW sites to service the entire country's LLW needs over a seven year period.

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1 From EPA's Draft Diffuse NORM document published in 1991.

2 Radium 226.

Congress did not intend for NORM to be classified as LLW since oil and gas NORM volumes alone would have exceeded that capacity in just over two years.

Finally, since Congress did not consider NORM as LLW when they passed enabling legislation, the restriction of interstate movement of NORM could be held to be in violation of the Commerce clause of the U.S. Constitution.

Description of the Rocky Mountain Low-Level Radioactive Waste Compact

The Rocky Mountain Low-Level Radioactive Waste Compact (Compact) was formed with the passage of the Low-Level Radioactive Waste Policy Amendments Act of 1985 and initially included the States of Arizona, Utah, Wyoming, New Mexico, Colorado, and Nevada. The Compact currently consists of Nevada, New Mexico, and Colorado. The Compact operates under a compact agreement approved by the State legislatures and the U.S. Congress. The agreement describes the manner in which the Compact oversees the number of LLW "regional facilities" which are sited within the Compact borders and the movement and disposal of LLW generated in the Compact. A three member board made up of representatives from the member States governs Compact operations. The New Mexico Environmental Department provides that State's representative to the board. The Compact employs a director and a small staff.

Draft changes to the Compact rules were prepared in December 1994 to allow for the development of New Mexico's NORM disposal rules. These changes were thought necessary due to the position of the Compact's director that the Compact had authority over the movement and disposal of NORM. These changes would allow the disposal of NORM via non-retrieved flowlines, encapsulation in plugged and abandoned wells, and injection into Class I or Class II wells without the requirement of Compact Board review and approval of each incident as a regional facility. The proposed changes to the Compact rules will not take effect until approved by each member-State and by the U.S. Congress. Until approval, the Compact's position is that each disposal incident (with the possible exception of non-retrieved flowlines) would be subject to prior review and approval by the Compact board. A result of this position may be that all NORM disposal activities would be required to meet the LLW disposal requirements of 10 CFR Part 61.

Positions of Other Compacts

Other compacts were surveyed to determine their positions regarding the compact authority over NORM. The following opinions were received:

Central Interstate Commission (AR, LA, KS, OK, NE)

Mr. A. Eugene Crump, the Executive Director and General Counsel of the Central Interstate Commission (Central) was contacted on January 26, 1996 regarding his compact's position on NORM. Mr. Crump stated that the compact commission that he directs does not interpret the federal law as providing compact jurisdiction over NORM waste. He reasons that NORM is not within the compact's jurisdiction because it is not Class A, B, or C waste under the Nuclear Regulatory Commission regulations. Oil and gas operators in any of the five member states of his compact may dispose of NORM waste without compact approval so long as the operator determines the NORM waste not to be low-level radiological waste (i.e., not Class A, B, or C waste).

Mr. Crump was aware that the Rocky Mountain Low-Level Radioactive Waste Compact does interpret its statutory authority to include jurisdiction over NORM. He said the actual statutory language for the Rocky Mountain Compact includes a broader definition for LLW than the federal act. He also said that his compact may decide to include NORM waste as within their jurisdiction after the waste disposal facility within the compact is completed. He believes the compact will be able to enlarge its definition of LLW to expand the compact's jurisdiction.

Low-Level Radiological Forum

Mr. Holmes Brown of Afton and Associates, a public relations firm in Washington D.C. and a member of the Low-Level Radiological Forum, was contacted on January 26. Mr. Brown was a lobbyist involved in the enactment of the 1980 and 1985 federal laws creating the compacts. Mr. Brown is not an attorney.

According to Mr. Brown, there is no definitive answer to the question of whether the Rocky Mountain Compact may invoke jurisdiction over NORM waste generated by the oil and gas industry. He said that there is an ambiguity created between the federal laws mandating the creation of the compacts and the actual compact language for each region. His opinion is that the ambiguity cannot be resolved without litigation in which the individual compacts are challenged for exceeding their statutory authority.

The legal issue which Mr. Brown believes can only be resolved through a legal challenge is the difference between the definition of LLW in the 1985 Act and that of the individual compacts. In his opinion, the broader language of the compacts will control because the federal law allows the States to submit definitions with broader language, which the Rocky Mountain and Northwest Interstate Compacts did, and the broader language was accepted by Congress.

Mr. Brown suggested that a blanket waiver from the Rocky Mountain Compact might be obtained for NORM disposal activities until the compact agreement amendments were ratified.

Implications of Compact Authority

The following table summarizes the numerous implications on New Mexico's ability to develop and fully implement NORM disposal regulations if the Compact has authority over NORM.

Compact Effect on NM NORM Requirements

NORM handling requirements with and without Compact authority over NM NORM

NORM Waste Handling Method	Without Compact Authority[2]	With Compact Authority[1]	
		Existing Compact Agreement[3]	After Compact Modifications[4]
Waste Shipments			
• Across State Lines	• No agency approval required. • License reciprocity for disposal contractors.	• Compact approval required. • Compact approval of intended waste site. • Surcharge payment to compact. • License reciprocity for disposal contractors.	• Compact approval required. • Compact approval of intended waste site. • Surcharge payment to compact. • License reciprocity for disposal contractors.
• Within State	• OCD approval of disposal activity only.	• OCD approval of disposal activity only. • Surcharge payment to compact.	• OCD approval of disposal activity only. • Surcharge payment to compact.
Disposal in P&A Wells	• NM OCD approval required.	• NM OCD approval required. • Compact approval required for each incident.	• NM OCD approval required.
Non-retrieved Flowlines	• NM OCD approval required.	• NM OCD approval required. • Compact approval required for each incident.[5]	• NM OCD approval required.

1 Compact has the authority to regulate NORM.

2 Compact does not have the authority to regulate NORM.

3 Requirements prior to the ratification of proposed modifications to the Compact agreement.

4 Requirements after the ratification of the proposed modifications to the Compact agreement.

5 Compact director has indicated that board approval for non-retrieved flowlines may not be necessary.

NORM Waste Handling Method	Without Compact Authority	With Compact Authority	
		Existing Compact Agreement	After Compact Modifications
Disposal at Commercial Facility	• NM ED approval required. • NM OCD approval required.	• NM ED approval required. • NM OCD approval required. • Compact approval of facility required.	• NM ED approval required. • NM OCD approval required. • Compact approval of facility required.
Disposal at Centralized Facility	• NM ED approval required. • NM OCD approval required.	• NM ED approval required. • NM OCD approval required. • Compact approval of facility required.	• NM ED approval required. • NM OCD approval required. • Compact approval of facility required.
Injection into Class II Well			
• Below Fracture Pressure	• NM OCD approval required.	• NM OCD approval required. • Compact approval required for each incident.	• NM OCD approval required.
• Above Fracture Pressure	• NM OCD approval required.	• NM OCD approval required. • Compact approval required for each incident.	• NM OCD approval required.
Disking Historical NORM In-place	• Landowner notification required.	• Landowner notification required. • Compact approval required for each incident.	• Landowner notification required. • Compact approval required for each incident.

Review of Rocky Mountain Low Level Radioactive Waste Compact Authority over Oil And Gas NORM

Conclusions

- Congress did not consider NORM as LLW.
- Compacts have not been given specific authority to regulate / restrict NORM. As far as protection of public health and safety is concerned, States have the authority to develop appropriate NORM regulations.
- Compact restriction of NORM activities would exceed Congress' authorization. It may require litigation to resolve the ambiguity between federal and compact language.
- It appears that other compacts (with the possible exception of the Northwest Interstate Compact) have not attempted to extend authority over NORM.
- Rocky Mountain Low-level Radioactive Waste Compact involvement in NORM would greatly impact NORM disposal operations in affiliated states.

Recommendation

- NMOGA should detail the full rationale as to why the inclusion of NORM under Compact authority is not necessary or practical.
- New Mexico should specifically encourage the Compact to reconsider its position on NORM. The inclusion of NORM under Compact authority is not in the best interest of the State nor the Compact.

1/1/83 CFR

(9) Closure and stabilization measures as set forth in the approved site closure plan must be carried out as each disposal unit (e.g., each trench) is filled and covered.

(10) Active waste disposal operations must not have an adverse effect on completed closure and stabilization measures.

(11) Only wastes containing or contaminated with radioactive materials shall be disposed of at the disposal site.

(b) Facility operation and disposal site closure for land disposal facilities other than near-surface (reserved).

§ 61.53 Environmental monitoring.

(a) At the time a license application is submitted, the applicant shall have conducted a preoperational monitoring program to provide basic environmental data on the disposal site characteristics. The applicant shall obtain information about the ecology, meteorology, climate, hydrology, geology, geochemistry, and seismology of the disposal site. For those characteristics that are subject to seasonal variation, data must cover at least a twelve month period.

(b) The licensee must have plans for taking corrective measures if migration of radionuclides would indicate that the performance objectives of Subpart C may not be met.

(c) During the land disposal facility site construction and operation, the licensee shall maintain a monitoring program. Measurements and observations must be made and recorded to provide data to evaluate the potential health and environmental impacts during both the construction and the operation of the facility and to enable the evaluation of long-term effects and the need for mitigative measures. The monitoring system must be capable of providing early warning of releases of radionuclides from the disposal site before they leave the site boundary.

(d) After the disposal site is closed, the licensee responsible for post-operational surveillance of the disposal site shall maintain a monitoring system based on the operating history and the closure and stabilization of the disposal site. The monitoring system must be capable of providing early warning of releases of radionuclides from the disposal site before they leave the site boundary.

§ 61.54 Alternative requirements for design and operations.

The Commission may, upon request or on its own initiative, authorize provisions other than those set forth in §§ 61.51 through 61.53 for the segregation and disposal of waste and for the design and operation of a land disposal facility on a specific basis, if it finds reasonable assurance of compliance with the performance objectives of Subpart C of this part.

§ 61.55 Waste classification.

(a) Classification of waste for near surface disposal.

(1) *Considerations.* Determination of the classification of radioactive waste involves two considerations. First, consideration must be given to the concentration of long-lived radionuclides (and their shorter-lived precursors) whose potential hazard will persist long after such precautions as institutional controls, improved waste form, and deeper disposal have ceased to be effective. These precautions delay the time when long-lived radionuclides could cause exposures. In addition, the magnitude of the potential dose is limited by the concentration and availability of the radionuclide at the time of exposure. Second, consideration must be given to the concentration of shorter-lived radionuclides for which requirements on institutional controls, waste form, and disposal methods are effective.

(2) *Classes of waste.* (i) Class A waste is waste that is usually segregated from other waste classes at the disposal site. The physical form and characteristics of Class A waste must meet the minimum requirements set forth in § 61.56(a). If Class A waste also meets the stability requirements set forth in § 61.56(b), it is not necessary to segregate the waste for disposal.

(ii) Class B waste is waste that must meet more rigorous requirements on waste form to ensure stability after disposal. The physical form and characteristics of Class B waste must meet

with the minimum and stability requirements set forth in § 61.56.

(iii) Class C waste is waste that not only must meet more rigorous requirements on waste form to ensure stability but also requires additional measures at the disposal facility to protect against inadvertent intrusion. The physical form and characteristics of Class C waste must meet both the minimum and stability requirements set forth in § 61.56.

(iv) Waste that is not generally acceptable for near-surface disposal is waste for which waste form and disposal methods must be different, and in general more stringent, than those specified for Class C waste. In the absence of specific requirements in this part, proposals for disposal of this waste may be submitted to the Commission for approval, pursuant to § 61.58 of this part.

(3) Classification determined by long-lived radionuclides. If radioactive waste contains only radionuclides listed in Table 1, classification shall be determined as follows:

(i) If the concentration does not exceed 0.1 times the value in Table 1, the waste is Class A.

(ii) If the concentration exceeds 0.1 times the value in Table 1 but does not exceed the value in Table 1, the waste is Class C.

(iii) If the concentration exceeds the value in Table 1, the waste is not generally acceptable for near-surface disposal.

(iv) For wastes containing mixtures of radionuclides listed in Table 1, the total concentration shall be determined by the sum of fractions rule described in paragraph (a)(7) of this section.

TABLE 1

Radionuclide	Concentration curies per cubic meter
C-14	8
C-14 in activated metal	80
Ni-59 in activated metal	220
Nb-94 in activated metal	0.2
Tc-99	3
I-129	0.08
Alpha emitting transuranic nuclides with half-life greater than five years	[1]100
Pu-241	[1]3,500
Cm-242	[1]20,000

[1] Units are nanocuries per gram.

(4) Classification determined by short-lived radionuclides. If radioactive waste does not contain any of the radionuclides listed in Table 1, classification shall be determined based on the concentrations shown in Table 2. However, as specified in paragraph (a)(6) of this section, if radioactive waste does not contain any nuclides listed in either Table 1 or 2, it is Class A.

(i) If the concentration does not exceed the value in Column 1, the waste is Class A.

(ii) If the concentration exceeds the value in Column 1, but does not exceed the value in Column 2, the waste is Class B.

(iii) If the concentration exceeds the value in Column 2, but does not exceed the value in Column 3, the waste is Class C.

(iv) If the concentration exceeds the value in Column 3, the waste is not generally acceptable for near-surface disposal.

(v) For wastes containing mixtures of the nuclides listed in Table 2, the total concentration shall be determined by the sum of fractions rule described in paragraph (a)(7) of this section.

TABLE 2

Radionuclide	Concentration, curies per cubic meter		
	Col. 1	Col. 2	Col 3
Total of all nuclides with less than 5 year half life	700	[1]	[1]
H-3	40	[1]	[1]
Co-60	700	[1]	[1]
Ni-63	3.5	70	700
Ni-63 in activated metal	35	700	7000
Sr-90	0.04	150	7000
Cs-137	1	44	4600

[1] There are no limits established for these radionuclides in Class B or C wastes. Practical considerations such as the effects of external radiation and internal heat generation on

transportation, handling, and disposal will limit the concentrations for these wastes. These wastes shall be Class B unless the concentrations of other nuclides in Table 2 determine the waste to the Class C independent of these nuclides.

(5) Classification determined by both long- and short-lived radionuclides. If radioactive waste contains a mixture of radionuclides, some of which are listed in Table 1, and some of which are listed in Table 2, classification shall be determined as follows:

(i) If the concentration of a nuclide listed in Table 1 does not exceed 0.1 times the value listed in Table 1, the class shall be that determined by the concentration of nuclides listed in Table 2.

(ii) If the concentration of a nuclide listed in Table 1 exceeds 0.1 times the value listed in Table 1 but does not exceed the value in Table 1, the waste shall be Class C, provided the concentration of nuclides listed in Table 2 does not exceed the value shown in Column 3 of Table 2.

(6) Classification of wastes with radionuclides other than those listed in Tables 1 and 2. If radioactive waste does not contain any nuclides listed in either Table 1 or 2, it is Class A.

(7) The sum of the fractions rule for mixtures of radionuclides. For determining classification for waste that contains a mixture of radionuclides, it is necessary to determine the sum of fractions by dividing each nuclide's concentration by the appropriate limit and adding the resulting values. The appropriate limits must all be taken from the same column of the same table. The sum of the fractions for the column must be less than 1.0 if the waste class is to be determined by that column. Example: A waste contains Sr-90 in a concentration of 50 Ci/m^3 and Cs-137 in a concentration of 22 Ci/m^3. Since the concentrations both exceed the values in Column 1, Table 2, they must be compared to Column 2 values. For Sr-90 fraction $50/150 = 0.33$; for Cs-137 fraction, $22/44 = 0.5$; the sum of the fractions $= 0.83$. Since the sum is less than 1.0, the waste is Class B.

(8) *Determination of concentrations in wastes.* The concentration of a radionuclide may be determined by indirect methods such as use of scaling factors which relate the inferred concentration of one radionuclide to another that is measured, or radionuclide material accountability, if there is reasonable assurance that the indirect methods can be correlated with actual measurements. The concentration of a radionuclide may be averaged over the volume of the waste, or weight of the waste if the units are expressed as nanocuries per gram.

§ 61.56 Waste characteristics.

(a) The following requirements are minimum requirements for all classes of waste and are intended to facilitate handling at the disposal site and provide protection of health and safety of personnel at the disposal site.

(1) Waste must not be packaged for disposal in cardboard or fiberboard boxes.

(2) Liquid waste must be solidified or packaged in sufficient absorbent material to absorb twice the volume of the liquid.

(3) Solid waste containing liquid shall contain as little free standing and noncorrosive liquid as is reasonably achievable, but in no case shall the liquid exceed 1% of the volume.

(4) Waste must not be readily capable of detonation or of explosive decomposition or reaction at normal pressures and temperatures, or of explosive reaction with water.

(5) Waste must not contain, or be capable of generating, quantities of toxic gases, vapors, or fumes harmful to persons transporting, handling, or disposing of the waste. This does not apply to radioactive gaseous waste packaged in accordance with paragraph (a)(7) of this section.

(6) Waste must not be pyrophoric. Pyrophoric materials contained in waste shall be treated, prepared, and packaged to be nonflammable.

(7) Waste in a gaseous form must be packaged at a pressure that does not exceed 1.5 atmospheres at 20°C. Total activity must not exceed 100 curies per container.

(8) Waste containing hazardous, biological, pathogenic, or infectious material must be treated to reduce to the mazimum extent practicable the potential hazard from the non-radiological materials.

El Paso Natural Gas Company

MEMORANDUM

To: Members of NORM Disposal Task Force
Date: February 1, 1996

From: Jamye Boone Ward JBW
Place: Office of General Counsel

RE: The Applicability of RCRA to Regulated NORM

At the November 21, 1995, NORM Disposal Task Force meeting, you asked me to research the issue of whether Naturally Occurring Radioactive Materials (NORM) generated during exploration, production, and transportation of oil and gas may be subject to the regulatory requirements of the Resource Conservation and Recovery Act (RCRA). In my opinion, Regulated NORM, as defined in Subpart 14 of the New Mexico Radiation Protection Regulation, is not a hazardous waste as defined in RCRA but is a solid waste and, therefore, subject to Subpart D of RCRA. However, NORM may be considered a hazardous substance as defined in the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).

Regulated NORM is not a RCRA hazardous waste.

Regulated NORM generated by the oil and gas industry is a solid waste within the meaning of RCRA because it is a discarded material resulting from an industrial or commercial operation.[1] A solid waste, unless otherwise exempt, is within the meaning of RCRA hazardous waste if it is listed in Subtitle C of RCRA or if it exhibits one of the four characteristics of hazardous waste, i.e., corrosivity, ignitability, reactivity, or toxicity. Regulated NORM is not a hazardous waste within the meaning of Subtitle C because it is neither a listed hazardous waste nor does it exhibit any of the characteristics of a hazardous waste.[2]

Further support that Regulated NORM is not within the definition of a RCRA hazardous waste comes from the Environmental Protection Agency's determination through a rulemaking procedure that RCRA Subtitle C jurisdiction extends to the *hazardous* portion of mixed hazardous and radioactive waste.[3] EPA's determination clearly distinguishes between radioactive waste and hazardous waste and would not apply Subtitle C requirements to such a mixture but for the presence of the hazardous portion of the mixture. EPA's distinction between hazardous and radioactive portions of a mixed waste confirms that EPA does not hold radioactive waste to be within the meaning of RCRA Subtitle C hazardous waste. Therefore, Regulated NORM may become subject to Subtitle C requirements only if the Regulated NORM is mixed with a hazardous waste.

[1] 42 U.S.C. § 6903 (27) (West 1994)
[2] For purposes of this opinion, I found no reference to radionuclides exhibiting the hazardous waste characteristics of corrosivity, ignitability, reactivity, or toxicity.
[3] 51 Fed. Reg. 24,504 (1986)

In addition, Regulated NORM generated during the exploration and production of oil and gas is within the RCRA Subtitle C exemption for "special wastes" more commonly referred to as oilfield waste. The RCRA oilfield waste exemption includes "[p]ipe scale, hydrocarbon solids, hydrates, and other deposits removed from piping and equipment prior to transportation "[4] Regulated NORM under consideration for disposal options by this Task Force is generated during the production of oil and gas and is found in the pipe scale and other deposits on piping and equipment used to produce and process oil and natural gas. Therefore, Regulated NORM to be disposed pursuant to the regulations under consideration by this Task Force is within the oilfield waste exempted from RCRA Subtitle C hazardous waste requirements.

Regulated NORM may be a CERCLA hazardous substance.

Although Regulated NORM is not a hazardous waste within the meaning of RCRA, it very likely would be defined as a hazardous substance within the meaning of CERCLA. The United States Fifth Circuit Court of Appeals in *Amoco Oil Co. v. Borden, Inc.*, held that radionuclides are hazardous substances subject to the regulatory requirements of CERCLA. The Court reasoned that a "hazardous substance includes 'any element, compound, mixture, solution, or substance designated pursuant to section 9602 of [CERCLA] . . . .' The EPA has designated radionuclides as hazardous substances under Sec. 9602(a) of CERCLA."[5] In that case, the Fifth Circuit issued a declaratory judgment for Amoco for liability and response costs incurred for remedial action taken on a 114 acre tract of land purchased from Borden and formerly the site of Borden's phosphate fertilizer plant.

Liability under CERCLA is not likely to become an issue in the disposal of Regulated NORM unless disposal is determined to be a release which presents an imminent danger to human health or the environment. To overcome any potential for liability under CERCLA, this Task Force should assure that all disposal options in the proposed regulations are sufficiently protective of human health and the environment.

Conclusion

Regulated NORM is a solid waste within the meaning of RCRA Subtitle D and not a Subtitle C hazardous waste. Therefore, the New Mexico Oil Conservation Division has jurisdiction over the disposal of Regulated NORM generated during the production and processing of oil and gas. This Task Force should assure that the proposed regulations for disposal of Regulated NORM are protective of human health and the environment to prevent future liability under CERCLA.

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[4] 53 Fed. Reg. 25,446 (1988)

[5] *Amoco Oil Co. v. Borden, Inc.*, 889 F.2d 664, at 668-669 (5th Cir. 1989)

NORM DISPOSAL TASKFORCE
PROPOSED RULE

TO BE ADDED TO 19 NMAC 15.A.7

REGULATED NATURALLY OCCURRING RADIOACTIVE MATERIAL (REGULATED NORM) shall mean naturally occurring radioactive material (NORM) contained in any oil-field soils, equipment, sludges or any other materials related to oil-field operations or processes exceeding the radiation levels specified in 20 NMAC 3. 1, Section 1403. [- -96]

NEW RULE 19 NMAC 15.I.714

714 DISPOSAL OF REGULATED NATURALLY OCCURRING RADIOACTIVE MATERIAL (REGULATED NORM)

A. Purpose

This rule establishes procedures for the disposal of regulated naturally occurring radioactive material (Regulated NORM) associated with the oil and gas industry. Any person disposing of Regulated NORM, as defined at 19 NMAC 15.A.7, is subject to this rule and to the New Mexico Environmental Improvement Board regulations at 20 NMAC 3.1, Subpart 14. [- 96]

B. Nonretrieved Flowlines and Pipelines

(1) The Division will consider a proposal for leaving flowlines and pipelines (hereinafter "pipeline") that contain Regulated NORM in the ground provided such abandonment procedures are performed in a manner to protect the environment, public health, and fresh waters. Division approval is contingent on the applicant meeting the following requirements as a minimum: [- -96]

(2) An application submitted to the Division must contain the following as a minimum: [- 96]

(a) The pipeline layout over its entire length on an OCD Form C-102 (Well Location and Acreage Dedication Plat) including the legal description of the location of both ends and all surface ownership along the pipeline. [- -96]

(b) Results of a radiation survey conducted at all accessible points and a

surface radiation survey along the complete pipeline route in a form approved by the Division. All surveys are to be conducted consistent with procedures approved by the Division. [- -96]

(c) The type of material for which the pipeline had been used. [- -96]

(d) The procedure to be used for flushing hydrocarbons and/or produced water from the pipeline. [- -96]

(e) An explanation as to why it is more beneficial to leave the pipeline in the ground than to retrieve it. [- -96]

(f) Proof of notice of the proposed abandonment to all surface owners where the pipeline is located. Additional notification may be required as described in Paragraph F. [- -96]

(3) Procedure

(a) Upon approval of the application by the Division, the operator must notify the OCD District office at least 24 hours prior to beginning any work on the pipeline abandonment. [- -96]

(b) As a condition of completion of the pipeline abandonment, all accessible points must be permanently capped. [- -96]

(4) General

(a) No additional Regulated NORM may be placed in any pipeline to be abandoned under this section other than that which accumulated in the pipeline under normal operation of the pipeline. [- -96]

(b) Any pipeline that does not exhibit Regulated NORM pursuant to required surveys may be abandoned without application under this section in accordance with the operator's applicable lease agreements. [- -96]

(c) If an appurtenance of a pipeline contains Regulated NORM, but upon removal of the appurtenance, no accessible point or surface above the pipeline exhibits the presence of Regulated NORM, then the applicant must submit to the Division the information regarding the Regulated NORM in the appurtenance and a statement concerning management of that Regulated NORM. With respect to the pipeline left in the ground, the applicant will be subject to the requirements under Paragraph B with the exception of B(2)(f). [- -96]

C. Commercial or Centralized Surface Waste Management Facilities

(1) The Division will consider proposals for the disposal of Regulated NORM in commercial or centralized surface waste management facilities, provided such disposal is performed

in a manner to protect the environment, public health, and fresh waters. Division approval is contingent on the applicant obtaining a Rule 711 permit for the facility and complying with additional requirements specifically related to Regulated NORM disposal as described below. [- -96]

(2) Application

All requests for authority to receive and dispose of Regulated NORM in commercial or centralized surface waste management facilities must be set for hearing by the Division in order for the operator of the facility to obtain or modify a Rule 711 permit. A request to dispose of Regulated NORM at a facility previously permitted under Rule 711 will be considered a major modification to that facility. The hearing request must be submitted to the Division and must contain the following at a minimum: [- -96]

(a) Complete plans for the facility, including the sources of Regulated NORM, radiation survey readings, quantities of Regulated NORM to be disposed, and monitoring proposals; [- -96]

(b) A copy of the Rule 711 permit for the facility, if one has been issued by the Division; [- -96]

(c) Proof of public notice of the application as required by Rule 711; and [- -96]

(d) Evidence of issuance of a specific license pursuant to 20 NMAC 3.1, Subpart 14, a license pursuant to 20 NMAC 3.1, Subpart 13, and any other authorizations required by law. [- -96]

(3) Procedures

(a) Operating procedures that are protective of the environment, public health, and fresh waters will be established in the Division's order. [- -96]

(b) Any person desiring to dispose of Regulated NORM in an approved commercial or centralized surface waste management facility must furnish Regulated NORM information to the facility operator sufficient for the operator to submit Form C-138 (Request for Approval to Accept Solid Waste) for approval to the Division. The facility operator must receive Division approval prior to receiving the Regulated NORM at the disposal facility. [- -96]

D. Downhole Disposal in Wells to be Plugged and Abandoned

(1) The Division will consider proposals for downhole disposal of Regulated NORM in wells that are to be plugged and abandoned, provided such plugging and abandonment procedures are performed in a manner to protect the environment, public health and fresh waters and in accordance with Division Rules pertaining to well plugging and abandonment. [- -96]

(2) Application

(a) A plugging and abandonment (P&A) Form C-103 must be completed by the applicant and submitted to the Division for approval. [- -96]

(b) In addition to all other information required for P&A submittal, the form must specifically state that Regulated NORM will be placed in the wellbore. The abandonment procedure contained in the application must identify depths at which the Regulated NORM will be placed, radiation survey results conducted on the Regulated NORM to be disposed, the procedure to be used to place the Regulated NORM in the wellbore, and the specific form of Regulated NORM being placed in the wellbore (e.g. scale, pipe, dirt, etc). [- -96]

(c) Notice of the submittal of an application to dispose of Regulated NORM in a P&A well must be sent to the surface owner and the mineral lessor. Additional notification may be required as described in Paragraph F. [- -96]

(3) Procedures

(a) All P&A procedures routinely required by the Division must be followed unless specifically superseded at the instruction of the Division to facilitate the Regulated NORM disposal. [- -96]

(b) No work will be commenced until the application for Regulated NORM disposal in a P&A well has been approved by the Division. [- -96]

(c) The cement plug located directly above the Regulated NORM and the surface plug must be color-dyed with red iron oxide. [- -96]

(4) General

(a) Regulated NORM must be disposed at a depth of at least 100 feet below the lower most known Underground Source of Drinking Water (USDW) zone. There must be evidence that there is cement across the known USDW zones. [- -96]

(b) Abnormally pressured zone(s) in the wellbore that might result in migration of the Regulated NORM after it has been placed in the P&A well must be addressed in the application. [- -96]

E. Injection

(1) The Division will consider proposals for injecting Regulated NORM into injection wells provided such injection is performed in a manner to protect the environment, public health, and fresh waters and such injection is in compliance with Division Rules pertaining to injection. Division approval is contingent on the applicant meeting the following requirements at a

minimum: [- -96]

(2) Disposal wells

(a) An application submitted to the Division must contain the following information at a minimum: [- -96]

(i) For both existing and newly permitted disposal wells, a completed Form C-108 (Application for Authorization to Inject) with proof of required notification and a statement that Regulated NORM will be injected; [- -96]

(ii) Description of Regulated NORM to be disposed including its source, radiation levels, and quantity; and [- -96]

(iii) Description of any process used on the material to improve injectivity. [- -96]

(b) Procedures

(i) Regulated NORM to be injected may only be from the applicant's operations. [- -96]

(ii) Each time Regulated NORM is injected, a Form C-103 (Subsequent Report Form) must be submitted to the Division and District offices. This form must be submitted within five (5) working days following the injection and must contain the following information: [- -96]

a. source of Regulated NORM;
b. NORM radiation level;
c. quantity of material injected;
d. description of any process used on the material to improve injectivity;
e. the injection pressure while injecting; and
f. date(s) of injection

(iii) Failures and repairs

a. All mechanical failures must be reported to the appropriate District office within 24 hours of the occurrence. A description of the failure and immediate measures taken in response to the failure must be submitted no later than 15 days following the occurrence. [- -96]
b. The operator must notify the District office of proposed repair plans. Approval of repair plans must

be received prior to any work commencing, and notice of commencement must be given to the District office such that the repairs may be witnessed and/or inspected. All well repairs must be monitored by the operator to ensure Regulated NORM does not escape the wellbore or is completely contained in the repair operations. [- -96]

(iv) At the time of abandonment of the disposal well, the injection interval that was used for Regulated NORM injection must be squeezed with cement or a cement plug must be located directly above the injection interval. Cement in either case must contain red iron oxide. [- -96]

(v) The injection zone must be at a depth of at least 100 feet below the lower most known USDW zone. [- -96]

(3) Injection in Enhanced Oil Recovery (EOR) Injection Wells

The Division will consider issuing a permit for the disposal of Regulated NORM into injection wells within an approved Enhanced Oil Recovery (EOR) Project only after notice and hearing and upon a minimum demonstration that:

(a) such injection will not reduce the efficiency of the project or otherwise cause a reduction in the ultimate recovery of hydrocarbons from the project; [- -96]

(b) such injection will not cause an increase in the radiation level of Regulated NORM produced from the EOR interval in any producing well located either within or offsetting the project area; and [- -96]

(c) the operations will be in conformance with provisions of Paragraph E(2) above. [- -96]

(4) Injection Above Fracture Pressure

(a) The Division will consider issuing a permit for the disposal of Regulated NORM in a disposal well above fracture pressure only after notice and hearing and upon receiving the following minimum information from the applicant: [- -96]

(i) A completed Form C-108 clearly stating that disposal of Regulated NORM at or above fracture pressure is proposed. [- -96]

(ii) Information required under Paragraph E(2) above. [- -96]

(iii) Model results predicting the fracture propagation including the expected height, extension, direction, and any other evidence sufficient to demonstrate that the

fracture will not extend beyond the confining layers. The application must include the procedure, the anticipated pressures and the type and pressure rating of equipment that will be used The current or potential utilization of zones immediately above and below the zone of interest may be considered by the Division in the acceptance or rejection of model predictions. [- -96]

(iv) A contingency plan of the procedures, including containment plans, that will be employed if a mechanical failure occurs. [- -96]

(b) Procedures

(i) 24 hour notice that injection will commence must be given to the District office. [- -96]

(ii) Upon completion of the injection, the disposal interval must be squeezed with cement or a cement plug must be located directly above the injection interval (cement in either case must contain red iron oxide), and a Form C-103 (Subsequent Report Form) must be submitted to the Division and the District office within five working days of the injection. If the operator desires to return the well to injection below fracture pressure, such plans must be contained in the application. [- -96]

(5) Injection in Commercial Disposal Facilities

The Division will consider issuing a permit for the commercial disposal of Regulated NORM by injection only after notice and hearing, and provided a specific license has been obtained pursuant to 20 NMAC 3.1, Subpart 14 and a license has been obtained pursuant to 20 NMAC 3.1, Subpart 13. In addition to obtaining these licenses the operator must also comply with Paragraph E(2) above. [- -96]

F. Additional Notification

(1) The Director may, at his discretion, require additional notice for any application under this rule. [- -96]

(2) Any notified party seeking to comment or request a public hearing on such an application must file comments or a hearing request with the Division within 20 days of notice. A request for a hearing must be in writing and must set forth the reasons why a hearing should be held. [- -96]

(3) A public hearing will be held as required by this rule or if the Director determines there is sufficient cause. [- -96]

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Disposal of Slurrified NORM Waste in EOR Injection Wells

The disposal of slurrified NORM waste in EOR injection wells represents a possible source of radium in water at producing wells. Since radium is already present in formation waters, injected NORM represents only an incremental source of radium in produced water. As explained below, existing controls on produced water and NORM disposal effectively eliminate any additional environmental risk from this disposal option.

The disposal of slurrified NORM waste in EOR injection wells represents the return of the waste to the same type of formation from which it was originally produced. Uranium and thorium already present in underground formations are continuously decaying, producing radium which is soluble in formation waters and can be transported to producing wells. This is the mechanism by which NORM is originally produced. The radium in the slurrifed waste may dissolve slowly under conditions in the reservoir and thus represents a potential source of radium in produced waters. The significance of slurrified waste as a potential source of radium in water from an EOR project producing well is reduced by the presence of radium already in formation waters and by dilution with waters from multiple injection wells. Even if injected NORM were to incrementally increase the radium concentration in produced water, no additional environmental risk would be created because of the control measures already in place for produced water and NORM. Requirements for proper disposal would prevent the inappropriate release of dissolved radium. Requirements for surveying equipment and wastes would prevent inadvertent release of radium-containing solids.

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Presented at 2/1/96 NORM Task Force
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