The NORM Repo

Naturally Occurring Radioactive Material Cont

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The NORM Report

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Regulations for the Control of Naturally Occurring Radioactive Materials - An Update

The status of regulations for the control of NORM contamination is summarized for all 50 states, the Environmental Protection Agency (EPA) and the Nuclear Regulatory Commission (NRC), Canada, and the Conference of Radiation Control Program Directors (CRCPD). NORM contamination is not limited to the petroleum industry, and several non-petroleum states are drafting rules for the control of NORM in other industries. Each regulatory agency was contacted during July and August 2001.

Since the last issue of The NORM Report two more states have enacted regulations for the control of NORM. Maine adopted the CRCPD Part N regulations effective August 1, 2001 and West Virginia extensively revised their general regulations for the control of radiation and have included NORM regulations. The revised regulations became effective July 1.

Several other states have enacted regulations for some aspects of NORM control. e.g., remediation and cleanup of contaminated areas and the disposal of contaminated material.

The states, besides Maine and West Virginia, which have specific regulations for the control of NORM are Arkansas, Georgia, Louisiana, Mississippi, New Mexico, Ohio, Oregon, South Carolina, and Texas.

There currently are no federal regulations specifically for the control of NORM, although the Environmental Protection Agency appears to be moving in that direction (See page 15).

Canada now has published their ***Guidelines for the Management of Naturally Occurring Radioactive Materials.*** This issue of ***The NORM Report*** contains the Preface, Introduction, Purpose, Uniformity of Protection, Guideline Basis and Table of Contents for the Canadian Guidelines. Some of the features of the Guidelines will be further discussed in the next issue of the newsletter.

The enactment of regulations specifically for the control of NORM requires compliance by all industries and companies with NORM contamination and NORM waste materials. Companies should also be in compliance with state general regulations for the control of radiation and the OSHA radiation regulations.

The status of NORM regulations in all 50 states, the EPA, NRC, Canada and the CRCPD begins on page 2.

Summaries of State and Federal Regulations for the Control of NORM

ALABAMA

Alabama is waiting for the CRCPD recommendations for the control of NORM before finalizing their redraft of the state's proposed NORM regulations. There is no time table for the regulations to be adopted. There has been some interest in plugging and abandoning wells, but there have been no requests from industry for NORM regulations.

ALASKA

There is no NORM regulatory activity in Alaska at the present time. Although the price of oil has risen significantly, the budget is still very tight. Nothing will probably be done until the federal government (e.g. the EPA) mandates the Alaskan legislature to do something about NORM, similarly to what is currently happening about radium/radon in drinking water. There is some concern as to how radium removed from drinking water will be treated.

There have been no current problems with NORM contamination that have been referred to the State for action. The oil companies take care of their own NORM problems. Contaminated wastes are either being sent to Washington State for disposal or to the EPA-permitted injection well on the North Slope.

The Arctic Monitoring Assessment Program which is a consortium of all the Arctic countries, is starting to take an interest in NORM-type material. It is not known how this will translate into the U.S. Committee's action on the issue.

ARIZONA

Although some consideration has been given to the need for specific NORM regulations in Arizona, there is no regulatory activity at present. All radioactive materials, including NORM, are addressed in Arizona's general radiation regulations.

ARKANSAS

The Arkansas NORM regulations constitute Section 7 of the ***Arkansas Rules and Regulations for Control of Sources of Ionizing Radiation.*** The revised regulations were summarized in the Fall 96 issue of this newsletter. There are no plans to revise the NORM regulations.

CALIFORNIA

In 1993, California underwent a peer review of its oil and gas exploration and production waste management regulatory programs. The review was conducted by the Interstate Oil and Gas Compact Commission (IOGCC), in cooperation with the U.S. Environmental Protection Agency and other interested groups. One recommendation of the review team was for a thorough evaluation of the industry NORM survey data by the appropriate state agencies to verify the extent of oil and gas field NORM in California.

Subsequent to the IOGCC peer review, and following increased public and governmental interest in NORM issues, the California Department of Conservation, Division of Oil, Gas and Geothermal Resources and the California Department of Health Services, Radiological Health Branch conducted a more comprehensive survey of selected sites. This effort was in cooperation with the oil and gas industry. The sites chosen for the study were selected because they were points where NORM was expected to occur; the sites were not selected randomly. All six oil and gas districts in the state were sampled in this study. Four hundred seventy-five radiation measurements were taken in 70 oil and gas fields. Besides gamma radiation meter readings, 124 samples of pipe scale, produced water, tank bottoms and soil were collected and analyzed by the Sanitation and Radiation Laboratory of the Department of Health Services to assess the actual concentrations and radionuclides present.

The results of the study indicate that NORM is not a serious problem in California oil and gas production facilities - confirming the findings found in an earlier survey (1987). In the 1987 survey, seventy-eight percent of the measurements were at background levels. A few sites had elevated levels of NORM. Further, studies of those sites should be considered. Routine protective measures may be all that is necessary to minimize exposure to radiation in these particular areas. The survey results and laboratory analyses are reported in: ***A Study of NORM Associated with Oil and Gas Production Operations in California.*** The report was issued by:

Department of Health Services
Radiological Health Branch
and
Department of Conservation
Division of Oil, Gas and
Geothermal Resources

Elevated levels of NORM were found in material from some of the production facilities. The NORM was found in water filters and softeners, gas processing equipment, pipe scale, and tank bottoms. However, these elevated levels were not high enough to be of immediate health concern.

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CALIFORNIA (continued)
Copies of the report are available from:

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A summary of the report recommendations was in the Fall 96 issue of The NORM Report.

Promulgation of NORM regulations in California is a low priority at present. However, it is expected that California will enact NORM regulations sometime later.

COLORADO

There are no specific rules for the disposal of NORM in Colorado. NORM is treated like any other radioactive material. Part 18 of the Colorado Rules and Regulations Pertaining to Radiation Control (milling of uranium and thorium) are being updated to conform to Criteria 6(6) of 10 CFR 40, Appendix A (benchmark dose criteria). The Final adoption of the rule change is expected this summer.

Colorado does have a solid waste regulation that says sewage sludge must be below 40 pCi/gm gross alpha activity before it can be sent to a landfill or otherwise "free released."

There is no specific NORM regulatory activity in Colorado at this time.

CONNECTICUT

Using ***Guidelines for Disposal of Drinking Water Wastes Containing Radioactivity*** (U.S. Environmental Protection Agency draft, June 1994) and Nuclear Regulatory Commission limits for the release of licensed material, the Connecticut Department of Environmental Protection put together its first guidelines for an actual water treatment facility. It will (for the present) continue developing guidelines for other facilities, giving case-by-case guidance. Simply put, the guidance will be to apply NRC discharge limits above background radioactivity. EPA Region 1 has given preliminary concurrence on this interpretation of EPA's Draft guidance. The thinking on this — "If it came from the ground and nothing was done to enhance it, it can go back into the ground."

Although an EPA Region 1 health physicist agreed with the proposed scenario that if "there is no radiological concern if it came from the ground, it could be returned to the ground if there had been no technical enhancement." However, an EPA expert on Underground Injection Controls (UIC) stated that the Clean Water Act amendments in its later revision, allows the injection of only water that meets federal drinking water standards. This would seem to exclude the return to the environment of any water treatment residue (salts from water softeners, filter backflush, etc.).

DELAWARE

There are no specific regulations for NORM in Delaware. NORM, NARM and other radioactive materials are considered to be covered in the general regulations for the control of radiation enacted in 1993. A revision of the general regulations became effective September 1, 1995. The revision tightened the compliance aspect of the regulations. NORM is considered to be covered in Sections C and D, Radioactive Materials, in the regulations.

The Radiation Control Regulations are being considered for further revision, particularly Parts H and K. The revisions are at least six months to a year away.

NORM contamination appears to be minimal in the state. Occasionally a call is received from a salvage yard or steel mill reporting that their gate radiation monitors had detected gamma radiation above background on a load of scrap metal.

FLORIDA

The Florida Department of Health, Bureau of Radiation Control continues to devote staff resources to research the scope of the state's TENORM issues to support its evaluation of appropriate regulatory approaches. Its recent focus has been on the state's heavy mineral sands industry. Two facilities located in the northeast part of the state generate source material as a result of their separation of economic minerals from ancient beach sand deposits. The state is working with the industry to improve their radiation protection programs to address the radiological hazards associated with both the source material and the TENORM progeny present at the sites.

Florida does regulate gyp stacks requiring stacks to be lined with geomembrane liners and capped with a soil cover. The idea is to mitigate leachate release into the underlying Floridan Aquifer emanating from the stack.

GEORGIA

Georgia's regulations for the control of NORM became effective in October 1994. There have been no changes in the rules since. Revisions to the general rules and regulations for the control of radiation have been drafted and were

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GEORGIA (continued)
adopted by the Board. The revisions became effective May 6, 1997. However, there are no changes in the NORM rules in this latest revision.

HAWAII

Hawaii has revised their general radiation regulations but the CRCPD Part N was withdrawn for now. Part N will probably be incorporated in the regulations during the next revision, probably in 2002. NORM problems that do arise meanwhile can be handled on a case-by-case basis under the general regulations.

Hawaii does not now have any particular problems with NORM. Although Hawaii does not have petroleum production, it does have geothermal wells on the big island. Possible NORM contamination in these geothermal wells has not been addressed.

There is also some concern about radioactivity and radiation contamination in the state's military posts and bases, including old radium gauges and instruments. Additionally, there may be some NORM associated with the dry dock activities in the state.

IDAHO

Idaho has no regulations specific to the control of NORM. There are general statutory and regulatory provisions in the existing Idaho law giving the Department of Environmental Quality authority to address problems with NORM should they arise.

The commercial hazardous waste disposal facility in Idaho has been accepting NORM, and other radioactively contaminated wastes from the Army Corps' FUSRAP program. Public, legislative and regulatory awareness and concerns about radioactive wastes have been heightened as a result. This scrutiny has led to the drafting of disposal regulations for radioactive wastes not presently regulated by federal regulations. It is hoped to have these disposal regulations ready before the end of the year, and to the state Department of Environmental Quality and the state legislature early in 2002.

ILLINOIS

In June 2001 a newly revised draft of the Illinois TENORM regulations was sent to the Illinois Department of Nuclear Safety (IDNS) staff for comment.

This draft incorporates most of the changes recently made to the Conference of Radiation Control Program Directors, Inc. (CRCPD) model rule (SSRCR Part N TENORM) by the CRCPD's SR-5 Working Group. The SR-5 submitted its revised draft Part N with its Rationale, Matters for Future Consideration, and revised Implementation Guidance to the CRCPD Board of Directors during June 2001 for evaluation and approval. The CRCPD Board's process may take 60 days. See the CRCPD Section for further details (page 19).

The TENORM regulations will be summarized in **The NORM Report** when available.

INDIANA

No new regulations for the control of NORM have been enacted or proposed in Indiana. There have been incidents involving NORM — contaminated materials in scrap yards, etc. It is expected there may be a need for NORM regulations sometime later.

IOWA

Iowa does not have specific regulations for the control of NORM. The Iowa general regulations for radiation control are assumed to cove NORM and are used when NORM problems arise. Most of the NORM problems in Iowa involve NORM contaminated metal sent to scrap recyclers.

KANSAS

Regulations for the separate and specific control of NORM have not been proposed in Kansas. Regulations for the control of all radioactive materials in Kansas implicitly include NORM. NORM problems that do arise are handled on a case-by-case basis, taking to consideration radiation exposures to the public and workers.

Kansas regulators have been working closely with the scrap industry, but there is no indication of probable legislation concerning NORM issues.

KENTUCKY

The Kentucky Department of Environmental Protection continues to work on a satisfactory long term disposal site for NORM. Meanwhile, remediation activities in the Martha Oilfield are proceeding gradually and continually towards the final phases of the cleanup of the field. Remediated materials are being stored in a temporary site pending the resolution of discussions on long term storage.

When the public clamor over the contamination of the Martha Oilfield dies down, consideration will be given to promulgating NORM regulations.

LOUISIANA

Following the adoption of the first state regulations for the control of NORM, Louisiana's revised NORM regulations became effective January 20, 1995. A draft of an

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LOUISIANA (continued)
Implementation Manual for Management of NORM in Louisiana was released in September, 1995. The Table of Contents of this manual was given in the Fall 95 issue of ***The NORM Report.***

The introduction to the Implementation Manual states "On January 20, 1995, the revised NORM regulations (LAC 33:XV. Chapter 14) became effective. This revised Implementation Manual reflects the changes and revisions which were made. It also includes the Radiation Protection Division's position on certain NORM issues that are not specifically addressed in the NORM regulations."

There have been no changes or revisions in the Louisiana NORM regulations since 1995 and none are planned.

Chem Waste has received approval for the disposal of NORM wastes containing up to 150 pCi/gm.

US Liquid sites in Louisiana can receive wastes containing less than 30 pCi/gm.

There is nothing new on the pending application for a new commercial NORM disposal well. The DEQ is waiting approval from the Office of Conservation who must approve it as a disposal well.

The number of P&A disposal wells has increased in Louisiana probably due to the high costs of NORM waste disposal.

There is one facility operated by Phillips Services. It is allowed to operate as a commercial facility because during the incineration process used the NORM is diluted. It is required that the incinerator wastes be disposed as incinerator RCRA waste. As long as the NORM wastes contain less than 5 pCi/gm the Department is not concerned about it from a regulatory point.

Chevron has a NORM injection well for their own wastes from a specific cleaning area (that is, a non-commercial facility.) Chevron was refused permission to bring NORM wastes from Chevron facilities in Mississippi for disposal in their Louisiana injection well.

Meetings have been held with the Hazardous Waste Division to discuss the disposal of NORM contaminated mixed wastes in a hazardous waste landfill. One problem is that the hazardous waste disposal regulations in Louisiana prohibit the disposal of RCRA hazardous wastes containing NORM in a hazardous waste landfill.

The Louisiana regulations are based upon federal regulations. There has been some contact with the EPA in an attempt to determine the intent of the federal regulations. Knowing the intent of the federal regulations may suggest some options which can be used for the disposal of the hazardous wastes containing small concentrations of NORM. The federal regulations do allow some radioactivity, e.g., cesium-137, in the wastes to be disposed of in a hazardous waste landfill. Up to 100 picocuries cesium per gram can be disposed of this way.

MAINE

The CRCPD Part N (1999) Suggested State Regulations for the Control of NORM have been adopted with an effective date of August 1, 2001.

Maine does have NORM - contaminated water treatment wastes. Many water supplies in Maine contain significant concentrations of radium, radon and uranium. Ion exchange resins used in water treatment can become "hot" with radium and uranium. Carbon filters used to remove radon from water become contaminated with the radon decay products, i.e., radioactive lead, bismuth and polonium.

The recent National Academy of Science report (***Risk Assessment of Exposure of Radon in Drinking Water, 1998***) and EPA's imminent adoption of radon in water MCL will mandate the state adopt water treatment wastes regulations.

MARYLAND

Maryland has no specific regulations for the control of NORM. NORM is handled under the general radiation regulations. These general regulations were revised to bring the rules into line with 10 CFR 20 as well as making other changes deemed advisable. The revisions became effective October 9, 1995.

MASSACHUSETTS

Massachusetts does not have specific regulations for the control of NORM. NORM is considered to be a subset of NARM and NARM is considered to be regulated by the Massachusetts general radiation regulations.

The amended general radiation regulations became effective July 9, 1999.

MICHIGAN

There have been no significant changes in the Michigan guidance documents for the control of NORM and although none are planned for the immediate future, the CRCPD's Part N is being closely followed to determine if it should be the basis for future NORM regulations in Michigan.

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MICHIGAN (continued)

The cleanup and disposal guidelines that are being used in Michigan have been updated with respect to references to applicable state laws and improved ties to federal MARSSIM guides. That is, some regulatory and technical updates have been made, but there have been no really substantial changes to the present guidelines.

There have been some successful remediations at several oil and gas facilities that had slightly contaminated soils. The contaminated soils were sent to solid waste landfills in Michigan. The Michigan guidelines for disposal in type 2 municipal solid waste landfill allow up to 50 pci/gm radium-226 to be disposed. This can be a large cost saving. Analysis has shown that this level shows an insignificant risk to the public.

Michigan is resurveying many sites for NORM contamination. The original surveys had been made in the early 90s The resurveys show that, generally, oil and gas sites which showed NORM contamination in the earlier surveys showed even greater contamination in the present study. For example, radiation readings of 1,800 mR/hour were seen at a gas separator and radioactivity levels of radium-226 as high as 150,000 to 200,000 pCi/g are seen in oil and gas facilities.

NORM contamination in paper mills has been reported. It is expected that Michigan paper mills will be surveyed for NORM.

MINNESOTA

Minnesota has no regulations for the specific control of NORM; it has regulations for devices that use discrete NARM (e.g. radium-226) as a source of radiation.

Within the next year Minnesota is planning to permit four landfills to take low-level NORM wastes. One of the landfills has been permitted. The level of NORM which will be accepted at the landfills has not been determined.

Concern about NORM is increasing as more people learn about NORM contamination. One problem that has arisen is the zircon sands left when foundries go out of business. Allowing these NORM wastes to be disposed in a landfill will make the disposal easier.

In 1998, the Minnesota Department of Health began the process to become an Agreement State with the U.S. Nuclear Regulatory Commission.

MISSISSIPPI

Responsibility for NORM in Mississippi is currently divided between the Department of Health and the Oil and Gas Board. The Oil and Gas Board has authority for NORM at the wellsite (effective July 1, 1995). After the petroleum leaves the wellsite the Department of Health was to have jurisdiction for any NORM contamination.

However, the Mississippi legislature has enacted legislation that gives the Oil and Gas Board jurisdiction over all oil and gas wastes. The Oil and Gas Board's NORM rules which became effective July 1, 1995 assumes jurisdiction only over NORM at the well. The Mississippi State Board of Health Regulations for Control of Radiation, Section 801.N is still in effect. The Division of Radiological Health continues to process licenses from contractors for NORM decontamination at industrial facilities. The attorney for the Department of Health believes that any commercial remediation, etc. will still have to be licensed by the Department.

Although the jurisdictional conflict has not been completely resolved, it has been smoothed out to a degree. If the NORM wastes are generated by E & P activities, it is assumed to be under the jurisdiction of the Oil and Gas Board. If the dosage from the NORM reaches a certain level, the Department of Health assumes jurisdiction. The Department of Health does not appear to be disputing this. The Oil and Gas Board has assumed jurisdiction for about 99% of NORM associated with oil and gas.

On August 11, 1995, the Oil and Gas Board issued a proposed ***Rule 69: Control of Oil Field NORM***. The rule provides the regulations for the control of oil field NORM to ensure that radiation exposures of workers and members of the general public are negligible. The rule applies to NORM that has been derived from the exploration and production activities of oil and gas operations within Mississippi.

Revisions made to Rule 69 at the public hearing in August 1995 were summarized in the Winter 96 issue of **The NORM Report**.

Rule 69 is being implemented. Oil and gas operators have conducted NORM surveys on all their properties. Over 1,500 survey data have been entered in a computer. Once all the surveys submitted have been put in the data base, it will be determined which oil and gas sites have not submitted survey data.

The data will be analyzed to determine how many sites are over a selected concentration level of NORM contamination. In the absence of a resolution of the jurisdictional dispute between the

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MISSISSIPPI (continued)
Department of Health and the Oil and Gas Board, the latter is assuming responsibility for every oil and gas site in the state.

Rule 69 was appealed to the Mississippi State Supreme Court where it was decided in favor of the Oil and Gas Board. The time for asking for a re-hearing has expired.

The Oil and Gas Board received a petition to amend statewide Rule 68 to authorize the surface and subsurface landspreading of Naturally Occurring Radioactive Materials (NORM) associated with the exploration and production of oil and gas. The petition was received from the US Oil & Gas Association, Alabama/Mississippi Division. ***Rule 68, Disposal of Naturally Occurring Radioactive Materials (NORM) Associated with the Exploration and Production of Oil and Gas*** became effective in September 1994. The original Rule 68 did not authorize the landspreading as a method of NORM disposal.

Special hearings were held before the State Oil and Gas Board of Mississippi commencing on August 18, 1999. At a hearing held September 15, 1999 arguments and closing statements were heard.

(Editor's Note: Some of the Oil and Gas Board's thinking on the revisions to Rule 68 were discussed in the Volume VII, No. 2 issue of **The NORM Report.**)

The Board found that the maximum radiation levels in the proposed amendments which would authorize the surface and sub-surface landspreading of NORM E&P oilfield wastes, are significantly more restrictive than the radiation levels contained in ***Statewide Rule 69: Control of Oil Field NORM*** which was approved by the Mississippi State Oil and Gas Board and became effective June 1, 1996, and which has recently been upheld on appeal by the Chancery Court of the First Judicial District of Hinds County, Mississippi. The Board found that existing Statewide Rule 69, among other things, prescribes standards for the cleanup or remediation of property containing NORM E&P oilfield wastes. The Board noted that property for unrestricted use could have a maximum ambient exposure rate of 50 microR per hour which is equivalent to concentrations of thirty (30) picocuries per gram. The Board's own expert, Dr. Vern Rogers, previously testified during the hearing on Statewide Rule 69, that this maximum soil concentration would result in no demonstrable health and safety impact on the residents of the State of Mississippi. The Board found that the proposed amendments to Statewide Rule 68, which were before the Board will allow the surface and subsurface landspreading of NORM E&P oilfield wastes only where the maximum NORM concentrations do not exceed five (5) picocuries per gram. The Board found that the proposed landspreading amendments to Statewide Rule 68 contain maximum NORM concentrations which are six (6) times more conservative than the NORM concentrations prescribed in existing Statewide Rule 69. In addition, the Board found that the maximum radiation exposure rate of 40 millirem per year, as proposed is fully supported by the overwhelming weight of the credible scientific testimony as being safe and fully protective of both human health and the environment.

The Board stated that in developing the landspreading rules, it had been the objective of the Board to develop rules which are sufficiently protective of oilfield workers, the general public and the environment, which do not conflict with existing state or federal regulations, which are technically sound, and which are implementable by those subject to their provisions. The Board was of the opinion and found that the landspreading rules being adopted fully meet all these objectives.

The Board found however, after careful evaluation, that a number of additional revisions should be incorporated into the proposed landspreading amendments to Statewide Rule 68 which differ significantly from the rule as originally proposed. These additional revisions were also summarized in the Volume VII, No.2 issue of **The NORM Report.**

The effective date of the amended Rule 68 was January 19, 2000.

Subsequently, an appeal of Rule 68 was filed in Lincoln County but was dismissed by the courts. There is an appeal of Rule 68 pending in Jefferson County. The Oil and Gas Board expects this latter filing will also be dismissed.

MISSOURI

There are no specific NORM regulations in Missouri and none are planned. Occurrences of NORM problems are handled under the state's general regulations for the control of radiation.

MONTANA

There have been no new developments applicable to NORM regulations in Montana. The regulations for the control of radiation have not been revised since 1980 and NORM is not considered to be included in these general radiation regulations. The Montana Department of Health and

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MONTANA (continued)
Environmental Sciences does have the statutory authority for NORM regulations, but there is no funded program for their development.

NEBRASKA

There has been no change in the status of NORM regulations in Nebraska. The state believes NORM is included in their general rules for the control of radiation. There are no plans for specific NORM rules.

Like many other states, Nebraska receives comments and questions from recyclers. Some of these recyclers have "requested" NORM rules so they can use NORM limits, e.g., 50 microrem/hr, to know when they can refuse or accept contaminated scrap.

NEVADA

Nevada has no specific NORM regulations and none have been proposed. Comprehensive statutes for the control of radiation address NORM and NARM similarly.

NEW HAMPSHIRE

New Hampshire considers NORM to be a subset of NARM, and the state has always regulated NARM in the same manner as by-product, source, and special nuclear materials are regulated as an Agreement State.

One area presently not regulated and may have to be is water treatment systems. There are significant quantities of radon in New Hampshire water supplies. Some water treatment facilities actually become quite "hot". Another potential NORM problem area is the inadvertent exposure to the radiation hazards associated with construction involving granite containing uranium and thorium and their radioactive decay products. Future regulatory activities may consider the need to adopt regulations similar to Part N of the Conference of Radiation Control Program Directors, Inc. (CRCPD), and the specific NORM regulations which have been adopted by several states.

NEW JERSEY

Soil Remediation Standards for Radioactive Materials, N.J.A.C. 7:28-12, was adopted on August 7, 2000. The response to the comment document, final rule, guidance manual on characterization and final status surveys, and the spreadsheet used to implement the standards are all available on the Radiation Protection Program's website
http://www.state.nj.us/dep/rpp/index.html

New Jersey has about 10 sites that are in some stage of cleanup. Most are using all or part of the rule for the cleanup levels and MARSSIM to implement final status surveys

NEW MEXICO

The New Mexico NORM regulations, ***Subpart 14: Naturally Occurring Radioactive Materials (NORM) in the Oil and Gas Industry*** became effective August 3, 1995.

Rule 714, Disposal and Transfer of Regulated NORM for Disposal provides the regulatory framework for the disposal options addressed in the Part 14 NORM regulations. Rule 714 became effective July 15, 1996. Rule 714 was summarized in the Summer 96 issue of **The NORM Report.**

The guideline document draft for use with the NORM regulations (Appendix A of the regulations) is also available. The guide is entitled ***Appendix A: Regulation Guidelines for the Management of NORM in the Oil and Gas Industry in New Mexico.***

The purpose of the document is to provide guidance to persons involved with facilities or equipment associated with the production of oil and gas and how to conduct screening surveys with portable radiation detectors to identify NORM and to initiate determination of needed radiation protection controls. The guide is intended for individuals licensed by the New Mexico Environment Department and permitted by the New Mexico Oil Conservation Division. The document is intended to assist general and specific licensees in t' proper use, transfer, transport, stor= age and disposal of regulated NORM.

The guide describes the type and extent of information needed by the New Mexico Radiation Licensing and Registration Section staff to evaluate an application for a specific license for authorization to perform commercial services involving NORM contamination.

The guide is for general guidance in preparation of the license application and should not be considered as all the information that may be required for a particular applic tion. Nor is it a substitute for the applicant's safety evaluation of the proposed activity. The applicant must ensure that the application correctly and adequately describes the commercial services offered, and the radiation safety measures and procedures to be followed to provide adequate protection. For this guide, decontamination means deliberate operations to reduce or remove ruce or remove residual NORM contamination from equipment, facilities or land.

Copies of the New Mexico NORM guide are available from:

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NEW MEXICO (continued)

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Copies of the State of New Mexico Radiation Protection Regulations (including the NORM rules), are available for $37.50 from:

Santa Fe Printing
1424 Second Street
Santa Fe, New Mexico 87505
505-982-8111

NEW YORK

On July 31, 2000, the New York State Department of Environmental Conservation amended the Department's ***Rules and Regulations for Prevention and Control of Environmental Pollution by Radioactive Materials*** (6 NYCRR Part 380), which control the disposal of radioactive materials and radioactive wastes in this State. The amendment was promulgated as an emergency rule (effective July 31, 2000) and added a new category of radioactive waste to those radioactive wastes that are regulated under Part 380. These radioactive wastes may not be accepted for disposal at a facility regulated under the provisions of the State's solid waste management regulation, 6 NYCRR Part 360 (Part 360). The full text of the amended Part 380 is available on the Department's website at

www.dec.state.ny.us/website/regs/380.htm.

Type of Radioactive Wastes Affected

This regulation affects radioactive wastes that were produced when ores were processed to extract uranium and thorium before November 11, 1978. (Similar wastes produced after that date are regulated by the US Nuclear Regulatory Commission.) Uranium and thorium are both naturally occurring radioactive materials, and the ores in which they are found contain other radioactive elements that are produced by the radioactive decay of the uranium and thorium. When the ores are processed to remove the uranium and thorium, the resulting waste products can contain high concentrations of these radioactive materials. These wastes have been considered by some to be NORM wastes that were heretofore unregulated. Often, the buildings and lands where the ores were processed became contaminated with these radioactive wastes.

Typical Waste Forms Excluded from Landfills by this Amendment

Cleanup of these sites usually involves removing contaminated soil. In addition, buildings and other structures often must be demolished. These result in waste soils and demolition debris. Some of these wastes are not contaminated with radioactive material and their disposal is regulated as solid waste under Part 360. However, some wastes will contain radioactive uranium, thorium, and their decay products at concentrations greater than what normally is found in those wastes due to naturally occurring radioactive materials. Under this amendment, those wastes are radioactive wastes and cannot be accepted at landfills in New York State.

Upcoming Rulemaking Process

The Department is still under emergency rulemakimg and is in the process of advancing the final rule. The Department has received some negative responses from several corporations but has also received positive responses from other groups.

New York continues to have problems with radiation alarms being set off at landfills.

NORTH CAROLINA

Nothing presently is being proposed for NORM regulations for North Carolina. The state recognizes that NORM is an issue that may need further attention, particularly in scrap metal yards. The state is also aware that there are North Carolina industries that generate NORM wastes, such as the phosphate industry, waste water treatment sludge, and metal mining and processing wastes. For the present, North Carolina remains committed to interacting with industry, Federal and state agencies and providing assistance in resolving disposition of NORM wastes.

North Caroline is considering ways to standardize or formalize its method of responding to incidents involving NORM/TENORM. Examples of such incidents include scrapyard/landfill portal monitor trips and mine refuse/industrial waste disposal. As part of this process, it was suggested that the state conduct a survey of other state radiation control programs to see

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NORTH CAROLINA (continued)
how other states handle NORM/TENORM incident response. For example, how do other states handle these incidents? It can take an excessive amount of time to investigate each portal monitor trip and similar incidents at landfills and scrapyards. The state cannot afford to send a health physicist or other technical staff to each facility requesting assistance. Should the agency be a free health physics consultant and guide them through every step in disposing of the NORM or do we just fax the facility a list of available qualified consultants and coordinate things from the "home office"?

NORTH DAKOTA

North Dakota does not have specific regulations for the control of NORM. The state is currently revising their Radiation Control Regulations, but no changes are expected with respect to NORM.

OHIO

The revised Ohio regulations for the control of radiation, including NORM and NARM, were summarized in the Spring 97 issue of The NORM Report. The regulations were revised to agree with the federal regulations as an initial step in Ohio's application to become an Agreement State. The Agreement State status became effective August 31, 1999.

It is probable that more specific NORM regulations will be necessary within the next 12 to 18 months.

OKLAHOMA

Oklahoma has no specific regulations for the control of NORM contamination. The draft of NORM regulations prepared by the Department of Environmental Quality's Radiation Management Advisory Council was tabled indefinitely at the request of the state legislature.

Oklahoma became an Agreement State effective September 29, 2000.

OREGON

There are no new developments regarding NORM regulations in Oregon.

Oregon has NORM regulations entitled ***Regulation and Licensing of Naturally Occurring Radioactive Materials (NORM).*** The rules that became effective in January 1990 are found in the Oregon Administration Rules, Chapter 333, Division 117 - Health Division. The Oregon NORM rules were summarized in the Winter 96 issue of **The NORM Report.**

PENNSYLVANIA

All radioactive materials including NORM are addressed in Pennsylvania's general radiation regulations. At present there are no specific NORM regulations.

A draft of solid waste regulations has been prepared by the Bureau of Radiation Protection and the Bureau of Land Recycling and Waste Management. This started as guidance about five years ago and has evolved to codify the essential elements so that now all the 300 landfills, transfer stations and resource recovery facilities (e.g. incinerators) will be required to monitor for radiation.

Maximum performance standards (alarm set points, etc.) and best management practices were set out in the regulations and guidance. That is, what can and what can't be accepted in a solid waste facility. Some 95% of the radioactive materials being disposed of in the landfills are short-lived nuclides, e.g. from nuclear medicine facilities. But, occasionally the landfills do receive some NORM waste, and it is expected that when the northwest counties of the state where there is an oil and gas industry start installing monitors many more instances of NORM will be seen.

Particularly noteworthy in these regulations and guidance is that if an alarm goes off because of cover materials taken from an undisturbed environment are being taken to a landfill, the materials are exempt from the regulations. That is, if there is no enhancement of the radioactivity, the materials are exempt.

If there is TENORM, i.e., technically enhanced NORM, a small quantity can be accepted by the landfills if certain conditions are met. One cubic meter of material can be accepted without further approvals if the material contains less than 5 picocuries radium per gram, and the dose rate is less than 50 μR/hour. Approval to accept other materials in the landfills will be handled on a case-by-case basis.

The set point for the gate radiation monitors is 10 μR/hour above background.

The title of Document Number:250-3100-001 is: ***Final Guidance Document on Radioactivity Monitoring at Solid Waste Processing and Disposal Facilities*** Effective Date: Sept. 16, 2000.

Now over the next two years, the 300 landfills must submit action plans, install radiation monitoring equipment, developing procedures, training staffs, etc.

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