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Low-Level Radioactive Waste from Commercial Nuclear Reactors

Volume 3. Bibliographic Abstracts of Significant Source References

Part 2.

Bibliography for Treatment, Storage, Disposal and Transportation Regulatory Constraints

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ORNL/TM-9846/V3&P2

Chemical Technology Division

LOW-LEVEL RADIOACTIVE WASTE FROM COMMERCIAL NUCLEAR REACTORS*

VOLUME 3. BIBLIOGRAPHIC ABSTRACTS OF SIGNIFICANT SOURCE REFERENCES

Part 2.

Bibliography for Treatment, Storage, Disposal and Transportation Regulatory Constraints

(Activity KD 01 00 00 0, 00001)

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PREFACE AND ACKNOWLEDGMENTS

Volume 3 of this low-level radioactive waste (LLRW) treatment assessment series represents a collated collection of abstracts from most of the papers and reference documents used in this study of LLRW treatment methodologies. The volume is published as two separate documents. Part 1 contains general literature abstracts concerning most aspects of low-level waste treatment, packaging, storage, transportation, and disposal. To facilitate reference use, a limited keyword index is included in Part 1. Part 2 was prepared by personnel from Sargent & Lundy Engineers and deals more specifically with regulatory constraints affecting treatment, storage, transportation, and disposal. Each section of Part 2 includes a serial listing of document abstracts to expedite the location of a particular abstract.

Credit should be given to the editors who have critically examined and prepared the final version of these bibliographies: L. H. Bell, F. M. Scheitlin, and M. G. Stewart. Draft and final versions of the bibliographies could not have been accomplished without the diligent secretarial assistance of M. M. Dawson. We wish also to express our appreciation to R. G. Rader and G. Y. Jordy, U.S. Department of Energy, and J. P. Nichols, Oak Ridge National Laboratory, for supporting this endeavor.

ABSTRACT

The overall task of this program was to provide an assessment of currently available technology for treating commercial low-level radioactive waste (LLRW), to initiate development of a methodology for choosing one technology for a given application, and to identify research needed to improve current treatment techniques and decision methodology. The resulting report is issued in four volumes. Volume 3 of this series is a collection of abstracts of most of the reference documents used for this study. Because of the large volume of literature, the abstracts have been printed in two separate parts.

Federal, state, and local regulations affect the decision process for selecting technology applications. Regulations may favor a particular technology and may prevent application of others. Volume 3, part 2 presents abstracts of the regulatory constraint documents that relate to all phases of LLRW management (e.g., treatment, packaging, storage, transportation, and disposal). This bibliography was prepared by personnel of Sargent & Lundy Engineers, under subcontract with ORNL.

VOLUME 3. BIBLIOGRAPHIC ABSTRACTS OF SIGNIFICANT SOURCE DOCUMENTS

PART 2. Bibliography for Treatment, Storage, Disposal, and Transportation Regulatory Constraints

INTRODUCTION

The literature search for this assessment of low-level radioactive waste (LLRW) management was found to contain a wealth of information that has often been overlooked. The primary reason for this neglect has been the lack of a single document summarizing these references.

The reference listing compiled by the assessment staff during the course of this work became so unwieldy that the need for a bibliography of LLRW-related literature became obvious. Staff members concluded that others in the field could also benefit from an up-to-date listing, in abstract form, of this information that could be useful to them in making important decisions about treatment, storage, disposal, and transportation (TSDT) processes in LLRW management.

Because of the large volume of literature in this field, these abstracts have been published in two separate documents: Volume 3, Part 1. Open-Literature Abstracts for Low-Level Radioactive Wastes, and Volume 3, Part 2. Bibliography for Treatment, Storage, Disposal, and Transportation Regulatory Constraints. Part 1 presents abstracts of the open literature relating to LLRW treatment methodologies. Some of these references pertain to treatment processes for hazardous wastes that may also be applicable to LLRW management. Part 2 presents abstracts of the voluminous regulatory constraint documents that relate to all phases of LLRW management. This latter bibliography was prepared by personnel of Sargent and Lundy Engineers, under subcontract to ORNL. Only minor editorial changes were incorporated.

Early in this LLRW assessment, it was recognized that federal and state regulatory constraints had to be incorporated into the decision process for selecting technology applications. In many cases, these regulations may favor a particular technology and may prevent the application of others.

The task of compiling these regulations and determining the degree to which they effect technology decisions was assigned to Sargent and Lundy Engineers. Their analysis of these effects can be found in Volume 2,

Chapter 4, of this report. This document, Part 2 of Volume 3, is the bibliographic basis for their work.

In order to simplify reference to the regulatory document file, a special computerized data base was formed. The input has the format of data sheets that combine typical heading-type information with brief textual material summarizing highlights of the full document. These data sheets have been printed to form this bibliography.

Using both the data base and the word-processing capabilities of the Framework™ computer code, these constraint data sheets have been grouped according to the LLRW management phases: disposal, processing, storage, and transportation (D,P,S,T). Within each group, the constraints have been organized according to the issuer of the constraint (federal, state, regional, or private institution), and further grouped within these categories as to type of document (e.g., CFR, Reg. Guides, I. E. notices, bulletins, tariffs, etc.). Appropriate document identification information such as title, number, date, and issuing agency is included with each abstract. A column-formatted index has been included at the beginning of each major section of the bibliography to identify the regulatory organizations and assist the reader in locating individual constraints.

To assist in the collation phase of the project, information on the document's principal and secondary phases of impact (D,P,S,T) was included in the data base, along with geographic information concerning the Compact region and the state, where applicable. In some cases, the constraint concerned a specific type of treatment, and this information was also included in the data base. Using these types of data, more than 200 constraint documents were abstracted, sorted, and grouped according to their impacts on the various phases of LLRW management.

The final consideration when a compilation of this kind is completed, is how to determine its usefulness. If these bibliographies provide a significant service, perhaps means can be found to update them annually. Readers are encouraged to send comments concerning the usefulness of bibliographies in Part 1 and Part 2 of Volume 3 to B. R. Rodgers or R. L. Jolley, Oak Ridge National Laboratory, P.O. Box X, Oak Ridge, Tennessee 37831.

SECTION 1.

TREATMENT CONSTRAINTS

PROCESSING CONSTRAINTS - SORTED BY RECORD NUMBER

Document type	Document No.	Document title	Issuing agency	Doc. date	Rec No.
Federal Regulation	10 CFR 20	Standards for Protection Against Radiation	NRC		1
Federal Regulation	10 CFR 30	Rules of General Applicability to Domestic Licensing of Byproduct Material	NRC		2
Federal Regulation	10 CFR 50	Domestic Licensing of Production and Utilization Facilities	NRC		3
Federal Regulation	10 CFR 51	Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions	NRC		4
Federal Regulation	10 CFR 100	Reactor Site Criteria	NRC		5
Federal Regulation	40 CFR 20	Environmental Protection Agency - Certification of Facilities	EPA		6
Federal Regulation	40 CFR 61	National Emission Standards For Hazardous Air Pollutants	EPA		7
Federal Regulation	40 CFR 190	Environmental Radiation Protection Standards for Nuclear Power Operations (see P-074, SECY 80-545)	EPA		8
NUREG	0472 Revision 3	Standard Radiological Effluent Technical Specifications for Pressurized Water Reactors	NRC		9
NUREG	0473 Revision 3	Standard Radiological Effluent Technical Specifications for Boiling Reactors Revision 3	NRC	Mar 1982	10
Regulatory Guide	1.21	Measuring, Evaluating, and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents from Light Water Cooled Nuclear Power Plants	NRC	Jun 1, 1974	11
Regulatory Guide	1.70 Revision 2	Standard Format and Content of Safety Analysis Reports (SAR's) for Nuclear Power Plants	NRC	Aug 31, 1975	12
Regulatory Guide	1.109	Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR 50 Appendix I	NRC		13
Regulatory Guide	1.110	Cost Benefit Analysis for Radwaste Systems for Light-Water-Cooled Nuclear Power Reactors	NRC	Feb 29, 1976	14
Regulatory Guide	1.111	Methods for Estimating Atmospheric Transport and Dispersion of Gaseous Effluents In Routine Releases From Light-Water-Cooled Reactors	NRC		15
Regulatory Guide	1.112	Calculation of Releases of Radioactive Materials in Gaseous and Liquid Effluents from Light Water Cooled Power Reactors	NRC	Mar 31, 1976	16
Regulatory Guide	1.113	Estimating Aquatic Dispersion of Effluents from Accidential and Routine Reactor Releases for the Purpose of Implementing Appendix I	NRC	Mar 31, 1977	17
Regulatory Guide	1.143	Design Guidance for Radioactive Waste Management Systems, Structures, and Components Installed in Light-Water-Cooled Nuclear Power Plants	NRC		18

PROCESSING CONSTRAINTS - SORTED BY RECORD NUMBER

Document type	Document No.	Document title	Issuing agency	Doc. date	Rec No.
Regulatory Guide	4.2	Preparation of Environmental Reports for Nuclear Power Stations	NRC	Jun 30, 1976	19
Regulatory Guide	8.10	Operating Philosophy for Maintaining Occupational Radiation Exposures As Low As Is Reasonably Achievable	NRC	Aug 31, 1975	20
Regulatory Guide	8.8	Information Relevant to Ensuring that Occupational Radiation Exposures at Nuclear Power Stations will be as Low as is Reasonably Achievable	NRC		21
Branch Technical Position	B16608	An Acceptable Radiological Environmental Monitoring Program	NRC	Apr 11, 1978	22
Branch Technical Position		Low Level Waste Licensing Branch Technical Position on Radioactive Waste Classification	NRC	Apr 30, 1983	23
NUREG	0016 Revision 1	Calculation Releases of Radioactive Materials in Gaseous and Liquid Effluents from Boiling Water Reactors	NRC	Mar 31, 1977	24
NUREG	0017 Revision 1	Calculations of Releases of Radioactive Materials in Gaseous and Liquid Effluents from Pressurized Water Reactors	NRC	Mar 31, 1985	25
NUREG	0800	Standard Review Plans 11.2, 11.3, 11.4 for Liquid, Gaseous, and Solid Waste Management Systems Associated Branch Technical Positions	NRC - (ETSB and RAB)		26
IE Bulletin	78-03	Potential Explosive Gas Mixture Accumulations Associated with BWR Offgas System Operations	NRC	Feb 10, 1978	27
IE Bulletin	80-10	Contamination of Nonradioactive System and Resulting Potential for Unmonitored, Uncontrolled Release of Radioactivity to Environment	NRC		28
IE Circular	77-10	Vacuum Conditions Resulting in Damage to Liquid Process Tanks	NRC	Jul 16, 1977	29
IE Circular	79-21	Prevention of Unplanned Releases of Radioactivity	NRC	Oct 19, 1979	30
IE Circular	80-14	Radioactive Contamination of Plant Demineralized Water System and Resultant Internal Contamination of Plant Personnel	NRC	Jun 25, 1980	31
IE Circular	80-18	10 CFR 50.59 Safety Evaluations for Changes to Radioactive Waste Treatment Systems	NRC	Aug 22, 1980	32
IE Circular	81-07	Control of Radioactively Contaminated Material	NRC	May 14, 1981	33
IE Information Notice	79-07	Rupture of Radwaste Tanks	NRC	Mar 26, 1979	34
IE Information Notice	79-09	Spill of Radioactively Contaminated Resin	NRC		35
IE Information Notice	81-27	Flammable Gas Mixtures in the Waste Gas Decay Tanks in PWR Plants	NRC	Sep 3, 1981	36
IE Information Notice	82-32	Contamination of Reactor Coolant System by Organic Cleaning Solvents	NRC	Aug 19, 1982	37
IE Information Notice	83-14	Dewatered Spent Ion Exchange Resin Susceptibility to Exothermic Chemical Reaction	NRC	Mar 21, 1983	38

PROCESSING CONSTRAINTS - SORTED BY RECORD NUMBER

Document type	Document No.	Document title	Issuing agency	Doc. date	Rec No.
IE Information Notice	83-33	Nonrepresentative Sampling of Contaminated Oil	NRC	May 26, 1983	39
IE Information Notice	83-44	Potential Damage to Redundant Safety Equipment as a Result of Backflow Through the Equipment and Floor Drain System	NRC	Jul 1, 1983	40
IE Information Notice	83-48	Gaseous Effluent Releases of Radioactive IODINE-125 and IODINE-131 in Excess of Nuclear Regulatory Commission Limits	NRC	Jul 14, 1983	41
IE Information Notice	83-49	Sampling and Prevention of Intrusion of Organic Chemicals into Reactor Coolant Systems	NRC	Jul 25, 1983	42
IE Information Notice	83-52	Radioactive Waste Gas System Events	NRC	Aug 9, 1983	43
IE Information Notice	84-15	Reporting of Radiological Releases	NRC	Mar 2, 1984	44
IE Information Notice	84-94	Reconcentration of Radionuclides Involving Discharges Into Sanitary Sewage Systems. Permitted under 10 CFR 20.303	NRC	Dec 21, 1984	45
SECY Paper	80-545	NRC Rulemaking to Implement EPA's "Environmental Radiation Protection Standards For Nuclear Power Operations" (40 CFR 190)	NRC	Dec 19, 1980	46
Generic Letter		Radioactive Release at North Anna Unit 1 and Lessons Learned	NRC	Oct 17, 1979	47
Generic Letter	81-39	NRC Volume Reduction Policy	NRC	Nov 30, 1981	48
State Survey	SL-SS03	Alabama State Survey	Alabama Dept. of Public Health, Bur. of Radiol. Health	May 8, 1985	49
State Survey	SL-SS04	Arizona State Survey	Arizona Radiation Regulatory Agency	May 21, 1985	50
State Survey	SL-SS05	Arkansas State Survey	Arkansas Dept. of Health, Ofc. of Radiation Control	May 9, 1985	51
State Survey	SL-SS02	California State Survey	Dept. of Health Services, Radiol. Health Branch	Jun 5, 1985	52

PROCESSING CONSTRAINTS - SORTED BY RECORD NUMBER

Document type	Document No.	Document title	Issuing agency	Doc. date	Rec No.
State Survey	SL-SS06	Colorado State Survey and Associated Documents	Dept. of Health, Div. of Radiol. Control	May 10, 1985	53
State Survey	SL-SS07	Connecticut State Survey	Conn. Dept. of Health & Rehab. Services	May 10, 1985	54
State Survey	SL-SS08	Florida State Survey	Dept. of Health & Rehab. Services, Ofc. of Radiation Control	Feb. 9, 1985	55
State Survey	SL-SS09	Georgia State Survey	Dept. of Mutual Resour. Div. of Environ. Protec. and Dept. of Human Resources	May 21, 1985	56
State Survey	SL-SS10	Illinois State Survey	Illinois Dept. of Nuclear Safety	May 3, 1985	57
State Survey	SL-SS11	Iowa State Survey	Dept. of Water, Air and Waste Mgt.	May 17, 1985	58
State Survey	SL-SS12	Kansas State Survey and Associated Documents	Dept. of Health Envir. Bur. of Air Quality & Radiation Control	May 20, 1985	59
State Survey	SL-SS13	Louisiana State Survey	Dept. of Envir. Quality, Ofc of Air and Nuclear Energy	May 8, 1985	60
State Survey	SL-SS14	Maine State Survey and Associated Documents	Dept. of Envir. Protect.	May 22, 1985	61
State Survey	SL-SS15	Maryland State Survey	Maryland Dept. of Health and Mental Hygiene, Waste Mgt.	May 20, 1985	62

PROCESSING CONSTRAINTS - SORTED BY RECORD NUMBER

Document type	Document No.	Document title	Issuing agency	Doc. date	Rec No.
State Survey	SL-SS30	Massachusetts State Survey	Dept. of Public Health, Radia. Control Program	Jun 4, 1985	63
State Survey	SL-SS16	Michigan State Survey	Dept. of Public Health, Radiol. Div.	May 17, 1985	64
State Survey	SL-SS17	Minnesota State Survey	Minn. Pollut. Control Agency	May 16, 1985	65
State Survey	SL-SS18	Mississippi State Survey	Miss. Dept. of Health, Div. of Radiol. Health	May 20, 1985	66
State Survey	SL-SS19	Missouri State Survey	Missouri Div. of Health, Bur. of Radiol. Health		67
State Survey	SL-SS01	Nebraska State Survey for Low Level Radioactive Waste Regulatory Constraints Study	Dept. of Health, Div. of Radiol. Health	May 21, 1985	68
State Survey	SL-SS33	Nevada State Survey	Nevada Dept. of Human Resources	Jul 31, 1984	69
State Survey	SL-SS34	New Hampshire State Survey and Associated Documents	Dept. of Health & Welfare Div. of Public Health Services	May 22, 1985	70
State Survey	SL-SS35	New Jersey State Survey	Dept. of Environ. Protect.		71
State Survey	SL-SS20	New York State Survey	Dept. of Health, Bur. of Environ. Radiation		72
State Survey	SL-SS21	North Carolina State Survey	Dept. of Resour., Radiation Protect. Section		73

PROCESSING CONSTRAINTS - SORTED BY RECORD NUMBER

Document type	Document No.	Document title	Issuing agency	Doc. date	Rec No.
State Survey	SL-SS22	Ohio State Survey and Associated Documents	Ohio Dept. of Health, Bur. of Environ. Health, Radiol. Health Unit	May 10, 1985	74
State Survey	SL-SS32	Oregon State Survey	Dept. of Human Resourc. Div. of Health	Aug 6, 1985	75
State Survey	SL-SS23	Pennsylvania	Bur. of Radia. Protect. Dept. of Environ. Resources (DER)	May 10, 1985	76
State Survey	SL-SS31	South Carolina State Survey	Dept. of Health & Environ. Control	May 8, 1985	77
State Survey	SL-SS24	Tennessee State Survey	Dept. of Health & Environ. Div. of Radiol. Health	May 13, 1985	78
State Survey	SL-SS25	Texas State Survey	Dept. of Health, Bur. of Radiation Control (DOH)	May 10, 1985	79
State Survey	SL-SS26	Vermont State Survey	Agency of Human Services, Div. of Occup. & Radiol. Health		80
State Survey	SL-SS27	Virginia State Survey	Dept. of Health Ofc. of Health Protect. & Environ. Mgt.	May 9, 1985	81
State Survey	SL-SS28	Washington State Survey and Associated Documents	Dept. of Social & Health Services; Radiation Control Section	May 13, 1985	82

PROCESSING CONSTRAINTS - SORTED BY RECORD NUMBER

Document type	Document No.	Document title	Issuing agency	Doc. date	Rec No.
State Survey	SL-SS29	Wisconsin State Survey	Dept. of Health & Social Services, Div. of Health	May 8, 1985	83
American National Standard	ANSI-40.35-1984	Volume Reduction of Low Level Radioactive Waste	American Nuclear Society/ ANSI		84
American National Standard	ANSI/ANS-55.1-1979	Solid Radioactive Waste Processing Systems for Light Water Cooled Reactor Plants	American Nuclear Society/ ANSI	Mar 26, 1979	85
American National Standard	ANSI/ANS-55.4-1979	American National Standard of Gaseous Radioactive Waste Processing Systems for Light Water Reactor Plants	American Nuclear Society/ ANSI	Jan 29, 1979	86
American National Standard	ANSI/ANS-55.6-1979	American National Standards Liquid Radioactive Waste Processing System for Light Water Reactor Plants	American Nuclear Society/ ANSI	Apr 24, 1984	87
ANI Bulletin		Radwaste Systems Using Combustible Materials/Components	American Nuclear Insurers		88
ANI Bulletin		ANI/MAERP Guidelines for the Werner & Pfleider Radwaste Volume Reduction and Solidification System	American Nuclear Insurers	Dec 31, 1980	89
ANI Bulletin		ANI/MAERP Guidelines for the DOW System. Solidification of Low Level Radioactive Wastes From Nuclear Power Plants	American Nuclear Insurers		90
ANI Bulletin		ANI's Recommendations for Carbon Filters	American Nuclear Insurers		91
ANI Bulletin		Radwaste Systems Using Combustible Materials/Component	American Nuclear Insurers	Dec 31, 1973	92
INPO Good Practice	82-001-OEN-09	Low Level Radioactive Waste Management	INPO	Aug 31, 1982	93
INPO Good Practice	CY-703	Good Practice for Control of Chemicals in Nuclear Power Plants	INPO	Nov 1, 1983	94
INPO Good Practice Paper	CY-705	Detection of Hydrocarbons and Halogenated Hydrocarbons with Total Organic Carbon Analyzers	Institute of Nuclear Power Operations		95

RECORD No. : 1

DOCUMENT TYPE : Federal Regulation

DOCUMENT NUMBER or CITATION: 10 CFR 20

DOCUMENT DATE :

DOCUMENT TITLE : Standards for Protection Against Radiation

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): D S T

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

Provides standards for protection against radiation. Gives definitions of units of dosimetry and various radioactive materials licensed by NRC. Gives specific limits on radiation dose to the public and to workers. Gives limits on the concentration of radioactivity in liquid and gaseous effluents. States that licensed material shall be disposed of only by transfer to authorized recipients, by obtaining special NRC approval, or by release using specified limits. States that no waste other than certain very small quantities of tritium and Carbon-14 shall be disposed of by incineration without specific NRC approval. Requires shipment manifests with specific information and quality control requirements for waste sent to land disposal facilities. Gives specific recording and reporting requirements for radiation monitoring, radiation surveying, waste release and waste disposal.

IMPACT ON TREATMENT:

Impact is broad. Collected wastes must be treated to within the concentration limits specified prior to release to water or air. Radiation dose limits to workers and general public require shielding of process equipment and storage areas. Defines only alternatives for waste disposal.

RECORD No. : 2

DOCUMENT TYPE : Federal Regulation

DOCUMENT NUMBER or CITATION: 10 CFR 30

DOCUMENT DATE :

DOCUMENT TITLE : Rules of General Applicability to Domestic Licensing of Byproduct Material

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

==========

PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): S

COMPACT REGION: STATE:

==========

CONSTRAINT DESCRIPTION:

Contains procedures and requirements for license applications to possess, utilize and dispose of byproduct materials. Basic NRC licensing document, far too broad in scope to summarize, only highlight. Refer to source document for details.

This materials license is one of the basic approvals a utility must have to construct and operate a nuclear power plant. To obtain it an Environmental Report (ER) is required per 10 CFR 51. Submittal of the ER and license application must be made a least 9 months prior to construction on the licensed activity.

LLRW equipment or facility mods can be licensed thru 10 CFR 30 or a 10 CFR 30 license amendment. As such they may require an ER.

Records of receipt, transfer and disposal of byproduct material must be maintained.

IMPACT ON TREATMENT:

An ER may be required on radwaste mods licensed thru 10 CFR 30. This can be avoided by performing a 10 CFR 50.59 review and finding no unreviewed safety question or technical specification change. If ER is required, at least 9 months must be allowed in the schedule for NRC review.

LLRW is contaminated with byproduct material, and its disposition is governed by this license.

RECORD No. : 3

DOCUMENT TYPE : Federal Regulation

DOCUMENT NUMBER or CITATION: 10 CFR 50

DOCUMENT DATE :

DOCUMENT TITLE : Domestic Licensing of Production and Utilization Facilities

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

==========

PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): S

COMPACT REGION: STATE:

==========

CONSTRAINT DESCRIPTION:

This is the primary document governing the licensing of power reactors from construction permit through operating license and subsequent amendments, and finally, for license termination.

Section 50.34a requires that the construction permit application include a description of the equipment that will be installed to control gaseous and liquid effluents and to package solid waste.

In addition to the concentration and dose limits on effluents given in 10 CFR 20, 10 CFR 50 gives numerical guidelines to achieve the ALARA principle and requires that power plants develop limiting conditions of operation (technical specifications) for their radioactive effluents. These numerical guidelines and limiting conditions are given in Appendix I of 10 CFR 50. The Appendix I guidelines are presented in terms of dose to persons in the unrestricted area as a result of power plant effluents. Depending on the pathway, the dose limitations range from 3 to 15 mrem.

10 CFR 50 Appendix A also mandates a number of General Design Criteria (GDC) which establish minimum design requirements. Of these, four apply directly to LLRW (60, 61, 63 and 64). The GDC's concern capacity to control releases of radioactive materials, ability to monitor releases and stored waste, and ability to contain and control radioactive materials.

RECORD No. : 3

IMPACT ON TREATMENT:

A radwaste system is required and must be described in license application. Plant will not be licensed without one.

Appendix I dose limits and technical specifications are more restrictive than 10 CFR 20. Although the limits are given in different terms, it can be calculated that Appendix I is 10 to 100 times more restrictive on concentration on effluents. This requires utilities to install evaporators and/or demineralizers rather than just filters on streams which will be released.

The GDC's give specific minimum requirements for the radwaste system and must be incorporated in any comment and structure.

RECORD No. : 4

DOCUMENT TYPE : Federal Regulation

DOCUMENT NUMBER or CITATION: 10 CFR 51

DOCUMENT DATE :

DOCUMENT TITLE : Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

==========

PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): T S

COMPACT REGION: STATE:

==========

CONSTRAINT DESCRIPTION:

This is a basic NRC licensing document, far to broad in scope to summarize here, only highlighted. Refer to source document for details.

Gives procedures and requirements for Environmental Reports (ER) submitted by utilities to the NRC to support NRC preparation of Environmental Impact Statements (EIS) and Environmental Assessments (EA) which are required by the National Environmental Policy Act (NEPA). Lists the licensing activities of the NRC which require an EIS or EA. Issuance of a nuclear plant construction permit and full power license per 10 CFR 50 require an EIS. 10 CFR 50 operating license amendments require an EA unless the change involves "no significant hazards."

The ER submitted by a utility for a construction permit must include a statement concerning transportation of radioactive waste and recommends transportation of only solid packaged waste.

IMPACT ON TREATMENT:

ER must contain description and performance criteria for LLRW systems. Has the effect of requiring LLRW processing systems for routine operations. Activities which require an EIS are open to public hearings, which lengthens the licensing process.

RECORD No. : 4

Each application for license amendment or other form of permission for an action from the NRC requires the submittal of an ER which will usually precipitate an EA. If the EA finds no significant impact, permission is granted, otherwise an EIS will be prepared. LLRW equipment mods usually only require an EA if licensed through a 10 CFR 50 amendment or NRC permit application.

This ER submittal process can be avoided by performing a 10 CFR 50.59 review and finding no unreviewed safety question or change in technical specifications.

RECORD No. : 5

DOCUMENT TYPE : Federal Regulation

DOCUMENT NUMBER or CITATION: 10 CFR 100

DOCUMENT DATE :

DOCUMENT TITLE : Reactor Site Criteria

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

==========

PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): S

COMPACT REGION: STATE:

==========

CONSTRAINT DESCRIPTION:

Gives reactor siting criteria in terms of the offsite dose at various distances from the reactor in the case of a design basis release. Standards for site seismic characterization and selection are given.

Dose limits are 25 mrem whole body and 300 mrem thyroid at site boundary during first two hours of the design basis release and the same dose for entire event in the "low population zone."

IMPACT ON TREATMENT:

Impact is minimal. Since the quantity and concentration of radionuclides contained within the radwaste system is small, site boundary dose is not affected greatly by radwaste system design. The analysis must still be done. Off gas system and concentrated waste contribute the most.

Generic NRC licensing position on onsite storage requires contribution of the onsite storage building to be less than 10% of the offsite dose limits. This does not require a seismic building for solid waste.

RECORD No. : 6

DOCUMENT TYPE : Federal Regulation

DOCUMENT NUMBER or CITATION: 40 CFR 20

DOCUMENT DATE :

DOCUMENT TITLE : Environmental Protection Agency - Certification of Facilities

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : EPA

PRINCPAL LLRW PHASE: Processing TREATMENT TYPE: Effluents

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

CONSTRAINT DESCRIPTION:

The document indicates the licensing procedure followed for any facility which releases or processes water born or airborne effluents or heat into the environment. In general, the procedures and regulations are administered via state agencies. This document empowers state agencies to regulate non-radiological pollutant or heat emissions into the environment. It administers the Federal Pollution Control Act.

IMPACT ON TREATMENT:

Key words: incineration, pollutants

Impact on radwaste systems for power plants will be negligible as far as current processing practice is concerned. However, incinerator and water effluents of a non-radioactive nature are regulated based on this document.

RECORD No. : 7

DOCUMENT TYPE : Federal Regulation

DOCUMENT NUMBER or CITATION: 40 CFR 61

DOCUMENT DATE :

DOCUMENT TITLE : National Emission Standards For Hazardous Air Pollutants

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : EPA

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE: Effluents, Off gas

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

The sections of this deocument provide emission standards of radioactive and hazardous pollutants from non-fuel cycle facilities. Disposal facilities are not considered as "fuel cycle facilities." As such any activities which would result in the release of hazardous radionuclide into the environment from these facilities are regulated by this document. The document prescribes acceptable environmental monitoring programs for determining maximum public doses. Reporting procedures and requirements are also detailed. Doses must be maintained below 25 mrem/yr whole body or 75 mrem/yr to a given organ for any person in an unrestricted area. (40 CFR 61 Subpart I).

IMPACT ON TREATMENT:

Key words: disposal, effluents, EPA, dose

This document will have no impact on facilities designed to process by products of the nuclear fuel cycle which is related to the public power industry. These facilities are under the application of 40 CFR 190, 40 CFR 191, and 40 CFR 192.

RECORD No. : 8

DOCUMENT TYPE : Federal Regulation

DOCUMENT NUMBER or CITATION: 40 CFR 190

DOCUMENT DATE :

DOCUMENT TITLE : Environmental Radiation Protection Standards for Nuclear Power Operations (See P-074, SECY 80-545)

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : EPA

PRINCPAL LLRW PHASE: Processing TREATMENT TYPE: Effluents & Off gas

SECONDARY LLRW PHASES (P, T, S, or D): S

COMPACT REGION: STATE:

CONSTRAINT DESCRIPTION:

(NOTE: SECY 80-545 provides for incorporation of 40 CFR 190 in 10 CFR 20)

The constraint provides maximum dose equivalents and limits quantities of radioactive material released to the general environment from a "fuel cycle" of public power facility. The annual dose equivalent must not exceed 25 millirems to the whole body, 75 millirems to the thyroid, or 25 millirems to any other organ in one year to any member of the public as a result of planned discharges of radioactive materials to the general environment, or radiation emissions from fuel cycle facilities. The document limits total fuel cycle emissions to less than 50,000 Ci of Krypton 85, 5 millicuries of I-129, 0.5 millicuries of transuranics per gigawatt year of electrical energy.

IMPACT ON TREATMENT:

Key words: effluents, dose, public

Since both direct radiation and releases are included in dose limits, shielding design for LLRW processing and storage is affected. Radwaste design must provide for sufficient effluent clean up and filtration, as well as monitoring to assure compliance. Impact on design is siginificant since this provides the basis for the effluent technical specifications (10 CFR 50).

RECORD No. : 9

DOCUMENT TYPE : NUREG

DOCUMENT NUMBER or CITATION: 0472 Revision 3

DOCUMENT DATE :

DOCUMENT TITLE : Standard Radiological Effluent Technical Specifications for Pressurized Water Reactors

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE: Liquid

SECONDARY LLRW PHASES (P, T, S, or D): S

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

The document provides:

1) Limiting Conditions for Operations (LCO) of PWRs

2) Radiological Environmental Technical Specifications (RETS) for PWRs

3) Surveillance requirements for liquid gaseous, and solid waste systems.

Emphasis is placed on the Process Control Program for solidification, including dewatering resins.

IMPACT ON TREATMENT:

Key words: resins, RETS, PCP, LCO, solidification, environmental monitoring

The impact on processing and design is significant. The objective of radwaste systems is to minimize health and environmental risks due to the release of radioactive materials. This document is the technical definition of this goal in terms of required processes, desired products and acceptable results of environmental monitoring.

RECORD No. : 10

DOCUMENT TYPE : NUREG

DOCUMENT NUMBER or CITATION: 0473 Revision 3

DOCUMENT DATE : Mar 1982

DOCUMENT TITLE : Standard Radiological Effluent Technical Specifications for Boiling Water Reactors Revision 3

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE: Effluents

SECONDARY LLRW PHASES (P, T, S, or D): S

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

The document provides:

1) Limiting Conditions for Operations (LCO) and surveillance requirements for all BWRs.

2) Radiological environmental monitoring technical specifications for BWRs.

3) Surveillance requirements for liquid, gaseous, and solid radwaste systems.

Particular emphasis is placed on the Process Control Program (PCP) for the "solidification" system for a final waste form that complies with burial criteria.

IMPACT ON TREATMENT:

Key words: PCP, LCO, solidification, burial criteria, environmental monitoring, RETS

The impact on processing is significant. Design and operations of all BWR radwaste phases have the end objective of minimizing the environmental and public health risks via controlled handling of radioactive material. This document provides the specific technical definition of this required objective.

RECORD No. : 11

DOCUMENT TYPE : Regulatory Guide

DOCUMENT NUMBER or CITATION: 1.21

DOCUMENT DATE : June 1, 1974

DOCUMENT TITLE : Measuring, Evaluating, and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents from Light Water Cooled Nuclear Power Plants

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE: Effluents

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

The guide describes programs acceptable to the NRC staff for measuring, reporting, and evaluating releases of radioactive classifying and reporting the curie content of solid wastes. The guide is mandated by a consortium including 10 CFR 50 Design Criteria 60, Design Criteria 64, 10 CFR 20.106, and 10 CFR 50.36a. Compliance should be demonstrated by reporting biannually the results of the monitoring program. The program must consider:

C) Regulatory Position

1) Meteorology -

a) Quarterly summaries of meteorological data should be submitted biannually.

b) Hourly data should be included for batch release release and abnormal conditions.

2) Radiological Monitoring -

a) All potentially significant release paths should be monitored for effluent volume, release rate, and specific nuclides.

RECORD No. : 11

b) Monitoring must comply with 10 CFR 20 effluent limits, aid evaluation of containment and treatment systems, and provide the quantities present for specific nuclides to aid in determination of dose to the public.

c) Gross radioactivity measurements are acceptable for continuous monitoring if concentrations are a small fraction of the MPC of 10 CFR 20 restrictions.

d) Specific radionuclide quantifications should be made prior to release for batch releases.

e) Samples should be representative. This requires stream mixing of watch and flushing of sample lines. Specific sampling guides for gaseous effluents are found in ANSI N13.1-1969.

f) Measurements must correct for decay.

g) Error estimation should be recorded. This should include counting statistics.

3) Appendix A provides a guide for minimum levels of sensitivity and frequency of sampling for various nuclides and systems.

4) Appendix B outlines recording and format procedures for the semiannual report. Notice that if levels of activity fall below the limits of sensitivity for the properly calibrated equipment the value should be recorded as "less than 'the limit of sensitivity' ", not as "not detected."

IMPACT ON TREATMENT:

Key words: monitoring, reporting, release

The impact on processing will be moderate. The impact on operations will be significant. Detailed sampling programs must be developed with an associated reporting procedure.

RECORD No. : 12

DOCUMENT TYPE : Regulatory Guide

DOCUMENT NUMBER or CITATION: 1.70 Rev. 2

DOCUMENT DATE : August 31, 1975

DOCUMENT TITLE : Standard Format and Content of Safety Analysis Reports (SAR's) for Nuclear Power Plants

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): S

COMPACT REGION: STATE:

CONSTRAINT DESCRIPTION:

10 CFR 50.34 requires that application for a construction permit includes a Preliminary Safety Analysis Report (PSAR) and that license application for operation must include a Final Safety Analysis Report (FSAR). This document provides detailed instruction for the formating and required information for the Safety Analysis Reports.

IMPACT ON TREATMENT:

Key words: format, 10 CFR 50, licensing, PSAR, FSAR

This guide has the effect of specifying minimum LLRW processing system. The document provides for a major reporting mechanism to indicate that design complies with all applicable design codes and regulations. Failure to provide all the requested data in the proper format may prevent licensing.

RECORD No. : 13

DOCUMENT TYPE : Regulatory Guide

DOCUMENT NUMBER or CITATION: 1.109

DOCUMENT DATE :

DOCUMENT TITLE : Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR 50 Appendix I

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

PRINCPAL LLRW PHASE: Processing TREATMENT TYPE: Effluents

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

CONSTRAINT DESCRIPTION:

The document provides numerical models and guides which should be used for determining design objectives and technical specification requirements for effluents (NOTE: Reg. Guide 1.42, Revision 1, is partially superceded by this guide.)

- Appendix A establishes calculational models for estimating dose to man from discharges to the hydrosphere. These consider pathways through potable water, aquatic foods, shoreline deposits, and irrigated foods.

- Appendix B establishes calculational models for estimating dose to man from mobile gases discharged to the atmosphere.

- Appendix C provides calculational models and assumptions for estimating the dose to man from radio iodines and other radionuclide dischargers to the atmosphere.

- Appendix D provides models to the population dose (man-rem, and thyroid-rem) from the hydrosphere and atmosphere.

- Appendix E provides tabular data for other Appendicies, Appendix F provides a derivation of the I function used for calculatioo of noble gas doses.

RECORD No. : 13

Related documents include:

- 10 CFR 50 Appendix I is found in File P-085 and establishes acceptably low doses to individuals in unrestricted areas.

- "The branch technical position on environmental modeling," File P-078, which describes the required environmental monitoring and reporting program.

- Regulatory Guide 1.21 in File P-035 which descibes acceptable in plant monitoring of effluents and the associated reporting procedures.

This document provides the theoretical models which should relate P-078 to P-035 and verify conformance with Appendix I. Its primary purpose to to predict for licensing procedures the results of the environmental monitoring program.

IMPACT ON TREATMENT:

Key words: effluents, hydrosphere, atmosphere, noble gases, radio iodine

RECORD No. : 14

DOCUMENT TYPE : Regulatory Guide

DOCUMENT NUMBER or CITATION: 1.110

DOCUMENT DATE : February 29, 1976

DOCUMENT TITLE : Cost Benefit Analysis for Radwaste Systems for Light-Water-Cooled Nuclear Power Reactors

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

CONSTRAINT DESCRIPTION:

This guide provides an acceptable method for performing cost benefit analysis for radwaste systems in conformance with 10 CFR 50 Appendix I Section II.D., with the benefit being the reduced dose to the public (ALARA). The basis is to be $1,000/man-rem. The document calls for a complete report on the analysis methods, assumptions and results.

- Appendix A describes the acceptable methods for analysis.

  1) Cumulative population exposures should be determined for each potential release source. (See Reg. Guide 1.09 File P-086 and Reg. Guide 1.111, File P-090.)

  2) Potential reduction technologies should be determined.

  3) Evaluate annual costs of augmented reduction technologies (Item 2.)

  4) Determine benefit based on $1,000/man rem reduction and compare with Item 3.

- Appendix B provides estimates of capital, direct, indirect, and operations and maintenance costs for various types of processes. It provides recovery factor information as well.

RECORD No. : 14

- Appendix C details the reporting information and procedure required for the cost benefit analyses. The data must be consistent with the Safety Analysis Report and the Environmental Report.

Impact on processing will be moderate.

- The licensee must justify all system costs related to a reduction in dose to the populace. This will impact system arrangement and design.

RECORD No. : 15

DOCUMENT TYPE : Regulatory Guide

DOCUMENT NUMBER or CITATION: 1.111

DOCUMENT DATE :

DOCUMENT TITLE : Methods for Estimating Atmospheric Transport and Dispersion of Gaseous Effluents In Routine Releases From Light-Water-Cooled Reactors

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

PRINCPAL LLRW PHASE: Processing TREATMENT TYPE: Effluents

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

CONSTRAINT DESCRIPTION:

The document provides basis calculational models and assumptions for estimation of atmospheric transport and dispersion of gaseous effluents in routine releases. The dispersion analysis is a major factor implementing calculation of the dose to the public from air born radionuclides as indicated in Reg. Guide 1.109 and 10 CFR 50 Appendix I. The document discusses:

1) Diffusion models and the associated mechanisms of variable trajectory and constant wind direction models.

2) Release mode impacts on dispersal and obstruction corrections.

3) Removal mechanisms including: radioactive decay, dry deposition, wet deposition, and deposition over water.

4) Meteorological data models for wind speed, direction, precipitation, mixing height and atmospheric stability.

IMPACT ON TREATMENT:

Key words: diffusion, effluents, deposition, meteorology

Impact on processing is moderate. The document provides instruction for analysis for assuring verification of the dose limitations of Appendix I resulting from air borne effluents.

RECORD No. : 16

DOCUMENT TYPE : Regulatory Guide

DOCUMENT NUMBER or CITATION: 1.112

DOCUMENT DATE : March 31, 1976

DOCUMENT TITLE : Calculation of Releases of Radioactive Materials in Gaseous and Liquid Effluents from Light Water Cooled Power Reactors

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE: Effluents

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

The guide provides acceptable parameter format information to be used for NUREG 0016, and NUREG 0017, (GALE Codes) for determination of source terms for effluent releases. The data is used to verify compliance with 10 CFR 50 Appendix I requirements.

Appendix A of Reg. Guide 1.112 details the parameter requirements for boiling water reactors, and Appendix B is for pressurized water reactors.

IMPACT ON TREATMENT:

Key words: Appendix I, GALE Codes, sources terms, effluents

The impact on processing is moderate as it affects the calculations for design compliance with Appendix I.

RECORD No. : 17

DOCUMENT TYPE : Regulatory Guide

DOCUMENT NUMBER or CITATION: 1.113

DOCUMENT DATE : March 31, 1977

DOCUMENT TITLE : Estimating Aquatic Dispersion of Effluents from Accidental and Routine Reactor Releases for the Purpose of Implementing Appendix I

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

PRINCPAL LLRW PHASE: Processing TREATMENT TYPE: Effluents

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

CONSTRAINT DESCRIPTION:

The guide provides basic calculational models for the estimation of aquatic dispersion of liquid effluent releases to surface bodies of water. It does not consider groundwater. Appendix I requires that doses to the populace in unrestricted areas be below specific levels. Calculation of these doses require a determination of the dispersion in the liquid pathways. The guide provides models for initial dilution, nontidal rivers, open coasts, estuaries, and impoundments.

IMPACT ON TREATMENT:

Key words: estuaries, rivers, dispersion, liquid effluent

RECORD No. : 18

DOCUMENT TYPE : Regulatory Guide

DOCUMENT NUMBER or CITATION: 1.143

DOCUMENT DATE :

DOCUMENT TITLE : Design Guidance for Radioactive Waste Management Systems, Structures, and Components Installed in Light-Water-Cooled Nuclear Power Plants

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): S

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

Gives design standards which NRC staff will accept as meeting the general design criteria of 10 CFR 50 Appendix A with regard to seismic and quality group classification, quality assurance and provisions for controlling the release of radioactive materials for radwaste managment systems, structures and components.

States that structures housing liquid radwaste should be seismic; piping systems should be ANSI B31.1, all welded, and hydrotested; and that a QA program be established to insure all design, construction and testing meets the requirements of 10 CFR 50 and this guide.

IMPACT ON TREATMENT:

Requirement for seismic structures to contain liquid radwaste affects the decision to put processing equipment in interim onsite storage buidlings.

Other requirements affect all treatment decisions equally in that they are design requirements for all radwaste equipment. The impact is mainly in terms of cost.

RECORD No. : 19

DOCUMENT TYPE : Regulatory Guide

DOCUMENT NUMBER or CITATION: 4.2

DOCUMENT DATE : June 30, 1976

DOCUMENT TITLE : Preparation of Environmental Reports for Nuclear Power Stations

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

Gives the standard format for Environmental Reports (ER) submitted pursuant to 10 CFR 51 at the construction permit and operating license stage of a nuclear power reactor. Also describes the method of distribution of the ER to the public and the manner of comment review. All aspects of the radwaste system must be described and the impact of radiological and chemical effluents on the environment estimated and assessed. Alternative designs must be discussed and justification given for the proposed design. Appendix I cost benefit analysis for radwaste system with respect to ALARA must be performed.

IMPACT ON TREATMENT:

- Minimum LLRW processing requirements are specified.
- Preparation of the ER document lengthens the plant licensing and review time.
- Method for achieving Appendix I limits must be described for plants docketed after January 2, 1971. Equipment must be included to meet Appendix I dose limitations and cost benefit criteria must be used for plants docketed after June 4, 1976.

RECORD No. : 20

DOCUMENT TYPE : Regulatory Guide

DOCUMENT NUMBER or CITATION: 8.10

DOCUMENT DATE : August 31, 1975

DOCUMENT TITLE : Operating Philosophy for Maintaining Occupational Radiation Exposures As Low As Is Reasonably Achievable

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): T S D

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

The document provides guidance on the management and operations to all specific licensees for the implementatiion of a good ALARA policy.

1) Plant personnel should be made aware of the ALARA policy.

2) Management should perform periodic formal audits to find means of improving the ALARA program.

3) A well defined and supervised radiation protection plan should be implemented.

4) Personnel must be familiar with the radiation protection measures that relate to his job.

5) The radiation safety officer must have sufficient authority to prevent unsafe practices and to communicate with appropriate management personnel.

6) The radiation safety staff should be familiar with sources, locations and job categories related to radiation exposure and review procedures in order to reduce exposure.

7) Adequate equipment and supplies for radiation protection should be provided.

RECORD No. : 20

8) Modifications to operating and maintenance procedures and plant equipment should be made where they will reduce exposure at reasonable cost.

IMPACT OF TREATMENT:

Key word: ALARA

The impact on processing is significant. The document impacts the design in terms of:

1) Shielding and isolation and high maintenance equipment from sources such as holding tanks should be considered.

2) Valves, fittings, and tanks should be designed to avoid crud traps.

Operations and maintenance procedures must weigh costs and ALARA benefits in scheduling and planning procedures for:

1) Decontamination - use of chelating agents.

2) Personnel scheduling and work to be performed.

3) Allowing decay time prior to maintenance where applicable.

RECORD No. : 21

DOCUMENT TYPE : Regulatory Guide

DOCUMENT NUMBER or CITATION: 8.8

DOCUMENT DATE :

DOCUMENT TITLE : Information Relevant to Ensuring that Occupational Radiation Exposures at Nuclear Power Stations will be as Low as is Reasonably, Achievable

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): T S

COMPACT REGION: STATE:

CONSTRAINT DESCRIPTION:

The document provides a description of several methods and considerations in meeting ALARA CRITERIA.

1. Establishment of program to maintain occupational radiation exposures ALARA.

2. Design of facilities and selection of equipment to reduce crud production and buildup.

3. Establishing radiation control procedures.

4. Making support equipment and information available.

NOTE: See 10 CFR 20.1(c)

IMPACT ON TREATMENT:

Key words: ALARA, maintenance, design, training, posting

Impact on radwaste systems design and operation is pervasive and significant.

RECORD No. : 22

DOCUMENT TYPE : Branch Technical Position

DOCUMENT NUMBER or CITATION: B16608

DOCUMENT DATE : April 11, 1978

DOCUMENT TITLE : An Acceptable Radiological Environmental Monitoring Program

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE: Effluents

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

Provides guidance for a minimum Radiological Environmental Monitoring Program. Per 10 CFR 20 and 10 CFR 50 Appendix I; a program should be established to corrolate the in-plant measures for monitoring and controlling releases to the resultant doses and effects along the principal pathways of exposure i.e., rivers receiving liquid effluents, and fields receiving air born particulates.

The technical position explains the procedure for establishing such a monitoring program and calls for an annual report of results of the program. The report should include a description of the environmental monitoring program, sampling methods, land use census, resultant data, and analytical methods. The paper provides an example of a minimal program and outlines frequency and type of measurements which should be conducted.

IMPACT ON TREATMENT:

Key words: environmental monitoring, release paths

The impact on processing will be moderate. The guide establishes a system of feedback to verify that the system is capable of complying with unrestricted area dose limitations. Modifications in effluent releases and processing could be required should the results of the program indicate violations of Appendix I 10 CFR 50 objectives.

RECORD No. : 23

DOCUMENT TYPE : Branch Technical Position

DOCUMENT NUMBER or CITATION:

DOCUMENT DATE : April 30, 1983

DOCUMENT TITLE : Low Level Waste Licensing Branch Technical Position on Radioactive Waste Classification

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): S S D

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

Deleted, incorporated with D-026.

IMPACT ON TREATMENT:

RECORD No. : 24

DOCUMENT TYPE : NUREG

DOCUMENT NUMBER or CITATION: 0016 Rev 1

DOCUMENT DATE : March 31, 1977

DOCUMENT TITLE : Calculation of Releases of Radioactive Materials in Gaseous and Liquid Effluents from Boiling Water Reactors

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

PRINCPAL LLRW PHASE: Processing TREATMENT TYPE: Effluents

SECONDARY LLRW PHASES (P, T, S, or D): S

COMPACT REGION: STATE:

CONSTRAINT DESCRIPTION:

The BWR GALE code is a computerized model for calculating the gaseous and liquid effluent radioactive releases from boiling water reactors. It is used to aid in design and verification of compliance with 10 CFR 50 Appendix I. NUREG 0016 outlines the calculation of required input parameters, expected gaseous and liquid source terms and procedures for formating and inputing the data parameters into the code.

An example input and a fortran listing of the code are included. Note: Reg. Guide 1.112 (File P-094) provides additional guidance in determining input parameters.

IMPACT ON TREATMENT:

Key words: GALE Code, effluents, 10 CFR 50, Appendix I, source terms, Reg. Guide 1.112, licensing

Impact on processing is significant. This is the NRC accepted method for determining plant source terms and releases for licensing as applied to 10 CFR 50 Appendix I. Design must conform to the regulations via GALE code analysis.

RECORD No. : 25

DOCUMENT TYPE : NUREG

DOCUMENT NUMBER or CITATION: 0017 Rev. 1

DOCUMENT DATE : March 31, 1985

DOCUMENT TITLE : Calculation of Releases of Radioactive Materials in Gaseous and Liquid Effluents from Pressurized Water Reactors

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): S

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

The PWR Gale Code is a computerized model for calculating the gaseous and liquid effluent radioactive releases from pressurized water reactors. It is used to aid in design and verification of compliance with 10 CFR 50 Appendix I. NUREG 0017 outlines the derivation of required input parameters, expected gaseous and liquid source terms, and procedures formating and inputing the data parameters into the code.

An example of the input and a fortran listing of the Code are included. Note: Reg. Guide 1.112 (File P-094) provides additional guidance in determining input parameters.

IMPACT ON TREATMENT:

Key words: GALE Code, effluents, 10 CFR 50, Appendix I, source terms, Reg. Guide 1.112, licensing

Impact on processing is significant. This is the NRC accepted method for determining plant source terms and releases for licensing as applied to 10 CFR 50 Appendix I. Design must conform to the regulations via GALE Code Analysis.

RECORD No. : 26

DOCUMENT TYPE : NUREG

DOCUMENT NUMBER or CITATION: 0800

DOCUMENT DATE :

DOCUMENT TITLE : Standard Review Plans 11.2, 11.3, 11.4 for Liquid, Gaseous, and Solid Waste Management Systems and Associated Branch Technical Positions

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC - (ETSB and RAB)

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE: Effluents

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

The constraint document explains the review plan followed by the NRC for construction permit applications. The plan is outlined for Liquid (11.2), Gaseous (11.3) and Solid (11.4) waste systems. In general, the plan outline is to analyze:

- System design: criteria, objectives, parameters of input and output, process flows, P&ID's
- Equipment design: flow rates, holding times, nuclide concentrations, decontamination
- Availability: maintenance schedules, alternative process routes
- Piping schedules and class
- Design temperatures and pressures.

Liquid systems must comply to 10 CFR 20.106, 10 CFR 50.34a, 10 CFR 50 Appendix I Design Criteria 60 and 61, and Reg. guides 1.110, 1.143.

Gaseous systems must conform to 10 CFR 20.106, 10 CFR 50 Appendix I, and 10 CFR 50.34, Design Criteria 3,60; and 61, and Reg. guides 1.140 and 1.143.

RECORD No. : 26

Solid systems must conform to 10 CFR 20.106, 10 CFR 50.34a, 10 CFR 71, Design Criteria 60, 63, and 64, and Reg. guide 1.143.

The document provides various branch technical position on the analysis for verification of compliance.

IMPACT ON TREATMENT:

Key words: review, NRC, construction permits, unrestricted areas, cummulative dose, effluents

This document impacts processing significantly in that the construction permit and licensing approval are subject to compliance with the review criteria. Every phase of LLRW processing is involved. The restrictions are to prevent excessive or unnecessary doses to the general populace.

RECORD No. : 27

DOCUMENT TYPE : IE Bulletin

DOCUMENT NUMBER or CITATION: 78-03

DOCUMENT DATE : February 10, 1978

DOCUMENT TITLE : Potential Explosive Gas Mixture Accumulations Associated With BWR Offgas System Operations

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE: Off gas

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

Hydrogen explosions at the Millstone-1 Unit resulted in injuries and personnel contamination. The initial explosion in the off gas system ruptured loop seals on the drain lines and allowed leakage which resulted in the second explosion. All BWR facilities should:

1) Review operation and maintenance procedures to prevent electrical are ignition of off gases.

2) Take actions to prevent H2 accumulation.

3) Review loop seal design and re-sealing procedures.

4) Review staff operating and emergency procedures.

IMPACT ON TREATMENT:

Key words: off gas, BWR, seals, hydrogen

Actual impact on processing will be minimal. Greater attention to maintenance and emergency recovery details for the off gas system will be required.

RECORD No. : 28

DOCUMENT TYPE : IE Bulletin

DOCUMENT NUMBER or CITATION: 80-10

DOCUMENT DATE :

DOCUMENT TITLE : Contamination of Nonradioactive System and Resulting Potential for Unmonitored, Uncontrolled Release of Radioactivity to Environment

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

The Brunswick power facility experienced contamination of the aux boiler system due to inadequate interface barriers with the radwaste systems (i.e., evaporator heat exhangers and temporary aux boiler heating hose.) All licenses must:

1) Review design to identify potential locations with contamination of nonradioactive systems by barrier failures.

2) Establish sampling or monitoring for nonradioactive system with interface barriers.

3) 10 CFR 50.59, 10 CFR 20, and 40 CFR 190 analysis and considerations must be addressed in cases of contamination.

4) Releases from contaminated systems must be monitored and controlled.

IMPACT ON TREATMENT:

Key words: heat exchangers, contamination, barriers, sampling

An additional level of monitoring must be incorporated into design and operations of radwaste systems.

- There is incentive to design so as to minimize unnecessary interface locations.

RECORD No. : 29

DOCUMENT TYPE : IE Circular

DOCUMENT NUMBER or CITATION: 77-10

DOCUMENT DATE : July 18, 1977

DOCUMENT TITLE : Vacuum Conditions Resulting in Damage to Liquid Process Tanks

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE: Liquid

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

Unanticipated vacuum conditions resulting from improper pressure regulation during pump out have yielded inward buckling and rupture of holding tanks. Rupture of radioactive process vessels have resulted in the escape of radioactive cover gases to the environment.

IMPACT ON TREATMENT:

Key words: holding tanks, vacuum, unplanned release, waste gas collection tank

It is recommended that some protection against Vacuum conditions that may cause tank collapse be considered. These may be in the form of process control, pressure alarms, or vent design modifications.

It is also recommended that capabilities to detect and locate radiation leakage be examined and improved where necessary. Impact on processing will be minimal. Careful maintenance of the nitrogen pressurization and waste gas collection systems are suggested.

RECORD No. : 30

DOCUMENT TYPE : IE Circular

DOCUMENT NUMBER or CITATION: 79-21

DOCUMENT DATE : October 19, 1979

DOCUMENT TITLE : Prevention of Unplanned Releases of Radioactivity

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE: Liquid

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

Overflows and leaks of radioactive liquids to areas outside of plant buildings have resulted from "as built" design or construction errors and errors in operating procedures. Corrosion and wear have yielded leakage in seals, valves, and piping systems.

IMPACT ON TREATMENT:

Key words: unplanned releases, corrosion, maintenance

Audits, testing, and inspection should periodically be performed to verify system integrity. Preventative maintenance programs should be implemented.

Review of as built conditions should be implemented for:

1) Routing of tank overflows to radwaste drains

2) Isolation of storm drains from potential spill areas

3) Installation of "drip pans" or equipment drains

4) Coffer dams and curbs to contain spills.

Impact on processing should be minimal. These points are covered in Regulatory Guide 1.143 (P-084).

RECORD No. : 31

DOCUMENT TYPE : IE Circular

DOCUMENT NUMBER or CITATION: 80-14

DOCUMENT DATE : June 25, 1980

DOCUMENT TITLE : Radioactive Contamination of Plant Demineralized Water System and Resultant Internal Contamination of Plant Personnel

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

PRINCPAL LLRW PHASE: Processing TREATMENT TYPE: Liquid

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

CONSTRAINT DESCRIPTION:

Temporary connections have resulted in inadvertant contamination of demineralized water (DW) systems via backflow. DW taps have been used as sources of water for human consumption.

IMPACT ON TREATMENT:

Potable and plant demineralized water systems should be analyzed for potential pathways of contamination.

Backflow through temporary connections between contaminated and DW systems must be prevented by physical controls. Cross connections without controls are prohibited. (Check valves are required.)

Only potable water systems are to be used for human consumption. Impact on processing will be minimal.

RECORD No. : 32

DOCUMENT TYPE : IE Circular

DOCUMENT NUMBER or CITATION: 80-18

DOCUMENT DATE : August 22, 1980

DOCUMENT TITLE : 10 CFR 50.59 Safety Evaluations for Changes to Radioactive Waste Treatment Systems

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

Provides guidance for appropriate 10 CFR 50.59 safety evaluation of radwaste system changes. Changes can be made without prior approval from NRC if no change in Technical Specs is required and no "unreviewed safety questions" exist. Requirements: written records of safety evaluation must be maintained, changes should be reported to the NRC at least annually. If changes involve Technical Spec changes on "unreviewed safety questions" exist, application for licensed amendment is required.

Safety evaluations must identify hazards and corrective action, must check compliance with 10 CFR 20.30, 50, 71, 100 and 40 CFR 190. System mods should be checked against Reg. Guide 1.143, controls should be checked against Reg. Guide 1.21 and SRP 11.5. Potentially explosive mixtures should be checked against SRP 11.3. Releases should be less than 10 CFR 100. Liquid concentrations of nuclides should be less than 10 CFR 20 Appendix B Table II Column 2 levels (SRP 15.7.1, 15.7.2, 15.7.3.)

IMPACT ON TREATMENT:

Key words: Tech Specs. 10 CFR 50, unreviewed safety questions

RECORD No. : 32

Impact on treatment is indirect in that no specific action is required. The significant impact is that within specified criteria (i.e., no unreviewed safety questions and no changes in tech specs) the station is given greater flexibility in the operations and modification of the LLRW system.

RECORD No. : 33

DOCUMENT TYPE : IE Circular

DOCUMENT NUMBER or CITATION: 81-07

DOCUMENT DATE : May 14, 1981

DOCUMENT TITLE : Control of Radioactively Contaminated Material

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE: DAW

SECONDARY LLRW PHASES (P, T, S, or D): S D

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

The circular provides guidance for determining the contamination levels for processing and disposing of DAW. It is an effort to prevent the uncontrolled transfer of slightly contaminated equipment and material to salvage and disposal facilities. Materials removed from restricted areas must be monitored using techniques capable of detecting 5000 dpm/100 square centimeters total and 1000 dpm/100 square centimeters. Removable beta/gamma contamination, Alpha contamination should also be considered where applicable.

IMPACT ON TREATMENT:

Key words: DAW, decontamination, swipe test

A process for determining activity of material removed from restricted areas is to be initiated. Contaminated material must be decontaminated or processed via the LLRW systems.

The impact on processing will be a function of the inputs to the LLRW system which are determined based on the suggested survey activities. Impact is expected to be small.

RECORD No. : 34

DOCUMENT TYPE : IE Information Notice

DOCUMENT NUMBER or CITATION: 79-07

DOCUMENT DATE : March 26, 1979

DOCUMENT TITLE : Rupture of Radwaste Tanks

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE: Liquid

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

Millstone power facility experienced a rupture of the waste concentrates tank due to overpressurization. Overpressurization and rupture were the results of tank vent plugging from solidified concentrates due to an overflow, and corrsion of the tank.

Design of tanks should consider corrosion problems and vent design modifications. Operations should modify procedures to avoid overpressurization and overflow and provide adequate maintenance and inspection.

IMPACT ON TREATMENT:

Key words: tank venting, overflow, pressuriztion, concentrates, corrosion

There is no major impact on LLRW processes; however, maintenance and design issues should be addressed.

RECORD No. : 35

DOCUMENT TYPE : IE Information Notice

DOCUMENT NUMBER or CITATION: 79-09

DOCUMENT DATE :

DOCUMENT TITLE : Spill of Radioactively Contaminated Resin

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE: Solidification

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

Contaminated resin slurry was spilled outside of the Crystal River Unit 3 aux bldg due to seams for a sump tank on a contractor's mobile solidification trailer. Spilled liquid was released through the storm sewer system. All licenses using mobile services should:

1) Review contractor's equipment against station technical specifications and FSAR requirements.

2) Review and test the integrated contractor-station system including preoperational testing and visual inspection.

3) Control releases and spills.

4) Assure adequate communication and procedural coordination.

IMPACT ON TREATMENT:

Key words: mobile solidification, PVC, resins, unmonitored release

Additional testing and coordination liability placed on the station licensee may discourage use of mobile systems. Installation of more permanent mobile system interface facilities i.e., properly drained and shielded truck bays is encouraged.

RECORD No. : 36

DOCUMENT TYPE : IE Information Notice

DOCUMENT NUMBER or CITATION: 81-27

DOCUMENT DATE : September 3, 1981

DOCUMENT TITLE : Flammable Gas Mixtures in the Waste Gas Decay Tanks in PWR Plants

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE: Offgas

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

Hydrogen ignition in the waste decay tank of the San Onofre Unit 1 during cold shutdown resulted from air leakage into the nitrogen system at a cross connection with valve operations air systems. Other facilities have experienced similar incidents of combustible gas mixtures due to cross connections. All licensees should review cross connections to eliminate unnecessary interfaces and establish a sampling program to prevent potentially combustible gas mixtures from forming.

IMPACT ON TREATMENT:

May encourage replacement of pressurized decay with charcoal delay. Sampling or monitoring programs should be established. Design should attempt to minimize potentially leaky cross connections.

RECORD No. : 37

DOCUMENT TYPE : IE Information Notice

DOCUMENT NUMBER or CITATION: 82-32

DOCUMENT DATE : August 19, 1982

DOCUMENT TITLE : Contamination of Reactor Coolant System by Organic Cleaning Solvents

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

Intrusion of organic solvent, trichloroethane, in the case of Hatch Unit 1) into the reactor coolant system via the radwaste drains and back to the condensate storage tank has resulted in a plant shutdown. Many organic solvents are not ionized and thus are not removed by ion exchange beds of the radwaste system.

IMPACT ON TREATMENT:

Key words: organic solvents, trichloroethane, floor drains, reactor coolant

Use of charcoal filter or other organic removal equipment is encouraged. Monitoring for organic solvents by detecting small concentrations of chlorine and organic carbon in the radwaste drain or the connection to the condensate storage tanks is recommended. Remedial action will be necessary to remove the solvents from the systems. Use of organic solvents (often used for cleaning and decontamination) should be limited or controlled where feasible.

RECORD No. : 38

DOCUMENT TYPE : IE Information Notice

DOCUMENT NUMBER or CITATION: 83-14

DOCUMENT DATE : March 21, 1983

DOCUMENT TITLE : Dewatered Spent Ion Exchange Resin Susceptibility to Exothermic Chemical Reaction

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): S D

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

Arkansas Nuclear 1 has experienced a temperature excursion in dewatered spent resins. There resins had been caked inside a holding tank for three years or more and were dewatered and placed in a liner prior to the apparent exothermic reaction.

The NRC is investigating conditions which may result in resin degradation, aging, and potential exothermic reactions. Licensing restrictions for resin utilization, storage, and handling may be considered depending on the results of current investigations.

IMPACT ON TREATMENT:

Key words: resins, storage, exothermic

Care should be taken to avoid contact of resins with strong oxidation agents. Stored dewatered resins should be monitored for degradation or evidence of chemical reaction. May limit use of dewatering option.

RECORD No. : 39

DOCUMENT TYPE : IE Information Notice

DOCUMENT NUMBER or CITATION: 83-33

DOCUMENT DATE : May 26, 1983

DOCUMENT TITLE : Nonrepresentative Sampling of Contaminated Oil

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE: Liquid

SECONDARY LLRW PHASES (P, T, S, or D): D

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

Nonrepresentative sampling of oil-water mixtures has resulted in the release of contaminated oil at several facilities. Samping techniques should be modified to:

1) separate water from oil samples

2) provide complete mixing of the remaining samples

3) revise sampling techniques to assure "representative" sampling.

IMPACT ON TREATMENT:

Key words: oil, sampling

Impact on radwaste processing will be minimal since contaminated oil is not a major constituent of waste streams. However, oil from floor drains must be adequately removed prior to entry to the filter or demineralizer beds. Removed oil should not be released without adequate analysis.

RECORD No. : 40

DOCUMENT TYPE : IE Information Notice

DOCUMENT NUMBER or CITATION: 83-44

DOCUMENT DATE : July 1, 1983

DOCUMENT TITLE : Potential Damage to Redundant Safety Equipment as a Result of Backflow Through the Equipment and Floor Drain System

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE: Liquid

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

Potential pathways for flooding the service water pump rooms via the floor drain systems have been identified at Calvert Cliffs Units 1 and 2. All licensees should investigate potential flooding of essential equipment via floor drains and take reasonable remedial steps. i.e., check valves should be installed where feasible.

IMPACT ON TREATMENT:

Key words: floor drains, flooding

Impact on operations of systems will be negligible except that unprevented flooding will add to the loads to the floor drain and radwaste filtration systems. Design should consider potential hazards of flooding radwaste equipment.

RECORD No. : 41

DOCUMENT TYPE : IE Information Notice

DOCUMENT NUMBER or CITATION: 83-48

DOCUMENT DATE : July 14, 1983

DOCUMENT TITLE : Gaseous Effluent Releases of Radioactive IODINE-125 and IODINE-131 in Excess of Nuclear Regulatory Commission Limits

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE: Off gas

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

The document indicated that surveys to assure compliance with 10 CFR 20.106 are to be conducted. 10 CFR 20.106 restricts the release of iodine-125 and iodine-131 to the atmosphere through uncontrolled effluent streams. The notice was issued in response to releases and potential releases in violation of 10 CFR 20.106 by several small quantity radioactive materials users such as laboratories and hospitals. All NRC licensees should review the 10 CFR 20.106 restrictions against their monitoring programs to assure compliance.

IMPACT ON TREATMENT:

Key words: Iodine, Off gas, 10 CFR 20

Impact on processing is negligible since systems for monitoring radio iodine releases are integral parts of Off gas systems design per 10 CFR 20.

RECORD No. : 42

DOCUMENT TYPE : IE Information Notice

DOCUMENT NUMBER or CITATION: 83-49

DOCUMENT DATE : July 25, 1983

DOCUMENT TITLE : Sampling and Prevention of Intrusion of Organic Chemicals into Reactor Coolant Systems

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE: Liquid

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

Events that have had potential to cause intrusion of organic compounds into the reactor coolant system have occurred at two separate facilities. In one facility organic cleaning solutions entered the coolant system from radwaste discharge tanks via floor drains. The Ph of coolant fell below specifications. These events illustrate the advantages of sampling programs for the detection of organic contaminants in vital water and coolant systems. While no specific action is required such programs seem advisable.

IMPACT ON TREATMENT:

Key words: organic solvents, monitoring

Direct impact on processing will be minimal. Monitoring and sampling systems should be included on the radwaste discharge to the condensate tanks with provisions to isolate and process or discharge organically contaminated liquids. Care in handling organic solvent should be maintained to prevent entrance to the radwaste systems.

RECORD No. : 43

DOCUMENT TYPE : IE Information Notice

DOCUMENT NUMBER or CITATION: 83-52

DOCUMENT DATE : August 9, 1983

DOCUMENT TITLE : Radioactive Waste Gas System Events

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE: Off gas

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

The IE Notice outlines two events involving releases from radioactive waste gas systems as well as summaries of nine other similar events. Predominantly these events were related to improper maintenance or startup procedures. All reactor licenses should investigate the applicability of these scenarios to their systems, and initiate revisions either in design or procedures to prevent similar releases.

IMPACT ON TREATMENT:

Key words: off gas, waste decay tanks, unplanned releases

Impact on processing is minimal. May encourage replacement of pressurized decay with charcoal delay.

RECORD No. : 44

DOCUMENT TYPE : IE Information Notice

DOCUMENT NUMBER or CITATION: 84-15

DOCUMENT DATE : March 2, 1984

DOCUMENT TITLE : Reporting of Radiological Releases

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE: Off gas

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

The IE Notice predominently addresses interaction with the NRC during an unplanned release event. In complete, and anomolous reporting with poor followup by the licensee indicates that more attention to aggressive investigation and concise reporting of incidents must be given. The licensee should become more familiar with reporting procedures as well as analysis of the facilities systems. The IE Notice includes updated Emergency Notification numbers.

IMPACT ON TREATMENT:

Key words: NRC, notification, emergency response, unplanned release, off gas

Impact on processing is negligible. The impact is in the area of operator training and emergency procedures. The NRC must be adequately informed.

RECORD No. : 45

DOCUMENT TYPE : IE Information Notice

DOCUMENT NUMBER or CITATION: 84-94

DOCUMENT DATE : December 21, 1984

DOCUMENT TITLE : Reconcentration of Radionuclides Involving Discharges Into Sanitary Sewage Systems. Permitted under 10 CFR 20.303

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE: Effluents

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

Radionuclide reconcentrations of diluted waste streams have been discovered in municipal sewage systems treatment facilities. 10 CFR 20.303 permits diluted discharges so long as the materials are "readily soluble or disposable." Care should be taken to assure that these criterion are met.

IMPACT ON TREATMENT:

Key words: sewage, dispersible, 10 CFR 20

The impact on processing for nuclear power facilities will be minimal since releases are generally not made into municipal sewage systems. However, review of release procedures including potential chemical or physical interactions after release which could lead to coagulation or reconcentration of released nuclides is suggested. Modification of release procedures or technical specifications may be required.

RECORD No. : 46

DOCUMENT TYPE : SECY Paper

DOCUMENT NUMBER or CITATION: 80-545

DOCUMENT DATE : December 19, 1980

DOCUMENT TITLE : NRC Rulemaking to Implement EPA's "Environmental Radiation Protection Standards For Nuclear Power Operations" (40 CFR 190)

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): T S D

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

The document is a brief to the commissioners of the NRC for obtaining approval of amendments to 10 CFR 20 incorporating compliance with 40 CFR 190 (EPA). For a clearer description of the constraint, see 40 CFR 190 in file location P-058.

- 40 CFR 190 establishes limits on the releases of radioactive material from fuel cycle operations and the resulting exposure of the public.

- Release limits and reporting requirements of 40 CFR 190 are integrated with Appendix I of 10 CFR 50 via individual license technical specifications.

- The 40 CFR 190 requirement of "combined doses from all fuel cycles facilities" has raised questions. EPA response is that in most cases "contributions from sources other than the immediate site will be small and should be ignored ..."

IMPACT ON TREATMENT:

Prior to the amendment to 10 CFR 20 an AEC/EPA Memorandum of Understanding, 38 FR 24936 issued on 9-11-73, required compliance with 40 CFR 190. As such no incremental impact is expected on the licensees. The impact on treatment will be as follows:

RECORD No. : 46

1) Each additional source will add to the expected release and exposure. In particular, increased use of onsite storage will require more stringent control to assure compliance with limits.

2) An additional reporting requirement is mandated for "Environmental Quality Standards" regarding releases of Krypton 85 and Iodine-129.

3) Questions regarding a "Deminimis" level for consideration as a contributor of combined dose may arise.

RECORD No. : 47

DOCUMENT TYPE : Generic Letter

DOCUMENT NUMBER or CITATION:

DOCUMENT DATE : October 17, 1979

DOCUMENT TITLE : Radioactive Release at North Anna Unit 1 and Lessons Learned

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE: Offgas & effluents

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

Per "TMI-2 Lessons Learned Task Force" in NUREG-0578. Power facilities are requested to address releases of radioactivity to the auxiliary building. Predominantly these address leakage minimization; however, due to releases at North Anna-1 the staff has determined that potential release paths must be considered as well. In the North Anna-1 incident, the refueling water tank charging pump was improperly aligned after a safety injection. The relief valve on the volume control tank vented to the (HLWD) High Level Waste Drain tanks. A construction error allowed the release to the auxbuilding via a system vent line. Had this been properly installed another release path through the LDW level waste drain tanks may have yielded a similar release. Review of potential release paths per NUREG-0578 Section 2.1.61 should be conducted and any modifications made on a priority basis.

IMPACT ON TREATMENT:

Key words: unmonitored releases, leakage, gaseous release paths

No significant impact on processing system design or operation is apparent. Verification that design and construction limit undesirable release paths is necessary.

RECORD No. : 48

DOCUMENT TYPE : Generic Letter

DOCUMENT NUMBER or CITATION: 81-39

DOCUMENT DATE : November 30, 1981

DOCUMENT TITLE : NRC Volume Reduction Policy

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE: Volume Reduction

SECONDARY LLRW PHASES (P, T, S, or D): S D T

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

The letter emphasizes the need to reduce volumes of waste for burial. Two major areas are outlined:

1) Volume reduction techniques - the NRC will expedite licensing of VR facilities.

2) Reduction in the amount of waste produced is encouraged. This may be done via management control over leakage and spill minimization, laboratory planning, segregation of non-radioactive vs. radioactive material, and deconamination of equipment where feasible.

3) The letter references NUREG/CR-2206 which presents a detailed compilation of volume reduction techniques and an associated economic analysis.

4) The letter indicates NRC policy will be to expedite volume reduction system licensing.

RECORD No. : 48

IMPACT ON TREATMENT:

Key words: decontamination, volume reduction, source reduction

The direct impact of this document is small; however, it indicates the intent of the NRC to encourage minimization of the waste volumes produced. This effort is encouraged to: extend the useful life of existing disposal facilities, alleviate the need for interim storage capcities, and reduce the number of waste shipments.

RECORD No. : 49

DOCUMENT TYPE : State Survey

DOCUMENT NUMBER or CITATION: SL-SS03

DOCUMENT DATE : May 8, 1985

DOCUMENT TITLE : Alabama State Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Alabama Dept. of Public Health, Bureau of Radiological Health

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Southeast STATE: Alabama

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CONSTRAINT DESCRIPTION:

Alabama Code, Title 22, Section 14 (Statute)
Alabama Adm. Code, Section 4-20-3-26 (Rules)

1) Alabama is an agreement state. It follows NRC guidelines for radiological considerations.

2) Alabama requires licensing based on the NRC Guides with a fee of $600,200 for a disposal site.

3) NEPA hearings for licensing are conducted by the state.

4) Disposal site land is owned by the State or Federal Governments.

5) The Department of Public Health restricts radiological emissions.

6) The Department of Environmental Management regulations for water quality: 30 mg/l BOD and 30 mg/l TSS.

7) Incineration projects require public hearing.

RECORD No. : 49

IMPACT ON TREATMENT:

Key words: effluents, agreement state, public hearing

Impact on processing is negligible. The public hearing for incineration may discourage use of incineration as a VR option or may limit charge rates and materials. Water quality restrictions are not expected to have significant impact.

RECORD No. : 50

DOCUMENT TYPE : State Survey

DOCUMENT NUMBER or CITATION: SL-SS04

DOCUMENT DATE : May 21, 1985

DOCUMENT TITLE : Arizona State Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Arizona Radiation Regulatory Agency

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Western STATE: Arizona

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CONSTRAINT DESCRIPTION:

Arizona Revised Statute Section 30, Chapter 4 and Sections 30-651 to 30-696

12 ACRR 1 (Administrative Rules and Regulations)
Arizona R9-21-205(B)-
(state surface water standards)

Arizona is an agreement state.
Reactor-related LLRW Regulations are deferred to NRC.

Incineration and LLRW Facilities' effluents are regulated by the Arizona Department of Health Services, Bureau of Air Quality and the Bureau of Water Quality.

TSP - 0.1 gr/dscf (corrected 12% Co)
Opacity - 20%

EPA Region IX - NPDES Permit. State Standards for Surface Water:

Strontium 90 - 80 Picocuries/Liter Water
Radium 226 + Radium 228 - 5 Picocuries/Liter Water
Unknown Radionuclides - 30 Picocuries/Liter combined Beta and Alpha

RECORD No. : 50

Key words: incineration, agreement state, opacity

Impact on processing is minimal since NRC jurisdiction over power facilities remains. Non-radiological restrictions on effluents may limit incineration charge rates and materials. Development of compact legislation and disposal criteria will influence processing.

RECORD No. : 51

DOCUMENT TYPE : State Survey

DOCUMENT NUMBER or CITATION: SL-SS05

DOCUMENT DATE : May 9, 1985

DOCUMENT TITLE : Arkansas State Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Arkansas Department of Health, Office of Radiation Control

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): T S D

COMPACT REGION: Central STATE: Arkansas

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CONSTRAINT DESCRIPTION:

Arkansas Radiation Rules Section 3E (Paragraphs 1400 - 1405)
Arkansas Radiation Control Act: Arkansas Statutes Annotated, Sections 82-1512 to 82-1527

Arkansas is an agreement state. NRC has jurisdiction over power facilities.

1) Department of Health license for incineration of LLRW.

2) Pollution Control and Ecology Agency license for incineration.

3) Air Standards: TSP - 0.1 gr/dscf
Opacity - 20%

4) Dept. of Health, and Pollution Controls and Ecology Agency permits are required for liquid discharges. Discharge water quality requirements vary depending upon receiving stream.

5) Minimal disposal criteria have been established; however, specific approval of the Dept. of Environmental Health is required.

RECORD No. : 51

IMPACT ON TREATMENT:

Key words: disposal, agreement state, incineration, license

Impact on processing is currently negligible. Incineration restrictions may influence charge rates and materials. Compact legislation and disposal criteria may influence waste form when fully developed.

RECORD No. : 52

DOCUMENT TYPE : State Survey

DOCUMENT NUMBER or CITATION: SL-SS02

DOCUMENT DATE : June 5, 1985

DOCUMENT TITLE : California State Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Dept. of Health Services, Radiological Health Branch

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Western STATE: California

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CONSTRAINT DESCRIPTION:

California is an agreement state. The state follows NRC radiological contents for LLRW processes as well as emissions of pollutants from facilities. However, local air and water quality district regulations vary throughout the state.

IMPACT ON TREATMENT:

Key words: agreement state, incineration, effluents

Impact on processing is minimal at this time. As compact legislation and the associated disposal criteria are developed, the state will play a more important role in LLRW.

Incineration and water processing effluents are regulated by local air and water quality districts with varying impact.

RECORD No. : 53

DOCUMENT TYPE : State Survey

DOCUMENT NUMBER or CITATION: SL-SS06

DOCUMENT DATE : May 10, 1985

DOCUMENT TITLE : Colorado State Survey and Associated Documents

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Dept. of Health, Div. of Radiological Control

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Rocky Mountain STATE: Colorado

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CONSTRAINT DESCRIPTION:

Colorado Revised Statutes, 25-11-101 to 109; 25-11-201 to 203; 25-11-301 to 305; 24-60-2201 and 2202; 24-60-2203 to 24-60-2212
Colorado Revised Statutes, Section 11, Article 25
Colorado Rules and Regulations Pertaining to Radiation Control, Parts 3 and 4

1) Licenses are required for all LLRW activities. Regulations are in agreement with NRC requirements. (agreement state)

2) Dept. of Health Regulations for Incineration:

   TSP - 0.1 gr/dscf (nonattainment areas)
   TSP - 0.15 gr/dscf (attainment areas)
   Opacity - 20%

3) Colorado Pollution Discharge Elimination System Permit (CPDES) required from the Water Quality Control Division for water discharges. Discharge quality standards must be met.

4) Disposal facilities require:

   a) State legislature, Governor, and Dept. of Health approval for licensing

RECORD No. : 53

b) No disposal of waste generated outside the state without legislative and gubernatorial approval.

IMPACT ON TREATMENT:

Key words: disposal site, incineration, agreement state, costs

Impact on processing is minimal. Incineration emission restrictions may limit charge rate and materials. Disposal restrictions will be developed and modified based on compact criteria. Resultant impact may be significant.

RECORD No. : 54

DOCUMENT TYPE : State Survey

DOCUMENT NUMBER or CITATION: SL-SS07

DOCUMENT DATE : May 10, 1985

DOCUMENT TITLE : Connecticut State Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Connecticut Department of Environmental, Division of Environmental Quality

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Northeast STATE: Connecticut

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CONSTRAINT DESCRIPTION:

1) NRC regulations apply for all radiological hazards. (Not an agreement state.)

2) Air pollution permit is required for construction and operation of an incinerator unit. Restrictions:

   TSP - 0.08 gr/dscf
   Opacity - 20%

3) The Water Division of the Dept. of Environmental Protection, under EPA and NRC supervision, would determine liquid effluent qualities.

IMPACT ON TREATMENT:

Key words: incineration

Impact on processing negligible. Incineration effluent restrictions may impact charge rates and materials.

RECORD No. : 55

DOCUMENT TYPE : State Survey

DOCUMENT NUMBER or CITATION: SL-SS08

DOCUMENT DATE : February 9, 1985

DOCUMENT TITLE : Florida State Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Dept. of Health and Rehabilitation Services, Office of Radiation Control

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Southeast STATE: Florida

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CONSTRAINT DESCRIPTION:

Florida Statues, Sections 404.0614, -.0617, -.20
Florida Administrative Code, Sections 10D-91, 10D-63
(Note: Florida Code citations include procedures for manifest and inspection.)

1) Agreement state

2) Air construction permit required from Department of Environmental Regulation. Standards:

   TSP - None
   Opacity - 5%

   Water limitations establish by DER at time of plant siting certification. Limitation:

   5 picocuries/liter water radiation

4) 48 hour prenotification of shipment to FD hours, for inspection.

5) $1.25/cubic foot tax on shipped waste.

6) FD hours has authority to mandate volume reduction.

RECORD No. : 55

IMPACT ON TREATMENT:

Key words: tax, cost, volume reduction, incineration, agreement state

Impact on processing is significant.

1) Volume reduction strongly encouraged by costs and legislation.

2) Incineration charges and materials may be affected by non-radiological air standards.

3) Notification and inspection encourage fewer shipments.

RECORD No. : 56

DOCUMENT TYPE : State Survey

DOCUMENT NUMBER or CITATION: SL-SS09

DOCUMENT DATE : May 21, 1985

DOCUMENT TITLE : Georgia State Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Dept. of Mutual Resources, Div. of Environmental Protection and Dept. of Human Resources

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Southeast STATE: Georgia

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CONSTRAINT DESCRIPTION:

Georgia Code, Section 88-13 (George Radiation Control Act)
Radioactive Waste Material Disposal Rules, Chapter 391-3-9 (DNR)
Rules and Regulations for Radioactive Materials, Chapter 290-5-23 (DNR)

NRC has jurisdiction for power facilities. Department of Human of Resources governs Radioactive Materials Licenses, and governs health safety issues. Department of Natural Resources issues permits for disposal.

Incineration Air Quality License (From DNR)

TSP - 500 lbs/hr input - no more than 1 lb/hr release
500 lbs/hr input - no more than 0.2 lb/100 lbs

Opacity - 20%

Water Quality Standards established by Department of Human Resources.

RECORD No. : 56

IMPACT ON TREATMENT:

Key words: incineration, agreement state

Incinerator charge rates may be limited by non-radiological effluent restrictions. Disposal criteria have not yet been established due to location of Barnwell facility in the Southeast Compact. However, if Georgia is chosen as a host state now, disposal criteria may influence processing.

RECORD No. : 57

DOCUMENT TYPE : State Survey

DOCUMENT NUMBER or CITATION: SL-SS10

DOCUMENT DATE : May 3, 1985

DOCUMENT TITLE : Illinois State Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Illinois Dept. of Nuclear Safety

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Midwest STATE: Illinois

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CONSTRAINT DESCRIPTION:

Illinois Annotated Statutes, Chapter 111 1/2,
Sections 211 to 219 (Radiation Protection)
Sections 241.1 241.2 (Waste Management)

1) Illinois defers to NRC all issues regarding power plants. Although Illinois is not an agreement state, efforts are being made to become one and radiation protection regulations have been developed by IDNS.

2) NRC would approve any incinerator used for burning low-level radioactive waste. IEPA would set limitations for nonradioactive emissions:

   TSP - 0.08 to 0.1 ppm
   CO - 500 ppm
   NOx and Hydrocarbons may also be limited

3) U.S. EPA and IEPA would jointly share jurisdiction over LLRW discharges. NRC limitations would be imposed on radioactive effluent. For nonradioactive effluents, state water quality standards would have to be met.

RECORD No. : 57

IMPACT ON TREATMENT:

Key words: incineration costs

Impact on processing is significant based on cost factors. State fees encourage volume reduction.

RECORD No. : 58

DOCUMENT TYPE : State Survey

DOCUMENT NUMBER or CITATION: SL-SS11

DOCUMENT DATE : May 17, 1985

DOCUMENT TITLE : Iowa State Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Dept. of Water Air and Waste Management

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Midwest STATE: Iowa

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CONSTRAINT DESCRIPTION:

Iowa Code Annotated, Section 455B.331 to -.340

Iowa is not an agreement state.
State defers Radioactive Regulations to NRC.
State does review waste disposal siting.
State air permit required for incineration.

Limitations:

TSP - 0.1 gr/dscf
Opacity - 40%

Water discharge:

NPDES/State water permit issued by state.

IMPACT ON TREATMENT:

Key words: incineration

Minimal impact. Effluent limits and permit requirements might affect incineration.

RECORD No. : 59

DOCUMENT TYPE : State Survey

DOCUMENT NUMBER or CITATION: SL-SS12

DOCUMENT DATE : May 20, 1985

DOCUMENT TITLE : Kansas State Survey and Associated Documents

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Dept. of Health of Environment, Bureau of Air Quality and Radiation Control

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Central STATE: Kansas

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CONSTRAINT DESCRIPTION:

Statute: Kansas Statutes, Section 48-1601 et seq. Nuclear development and Radiation Control Act.
Regulations: KAR Section 2835, 135-300

1) Kansas radioactive materials license

2) Incinerator installation and operation license

   TSP - 0.3 to 0.1 gr/dscf, depending on charge rate of incinerator

   Opacity - 20%

3) NPDES and state water quality permit required for nonradioactive wastewater discharge. Requirements vary depending on site and effluents.

4) NRC Regulations incorporated in state regulations for radiological concerns.

5) Disposal facility license requirements and procedures are included in the associated documents.

RECORD No. : 59

IMPACT ON TREATMENT:

Key words: incineration, license, disposal

Impact on treatment is currently minimal. Restrictions on Incineration non-radiological effluents will influence the types of materials and charge rates. Development of disposal criteria may influence processing waste forms.

RECORD No. : 60

DOCUMENT TYPE : State Survey

DOCUMENT NUMBER or CITATION: SL-SS13

DOCUMENT DATE : May 8, 1985

DOCUMENT TITLE : Louisiana State Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Dept. of Environmental Quality, Office of Air and Nuclear Energy

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): D S T

COMPACT REGION: Central STATE: Louisiana

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CONSTRAINT DESCRIPTION:

Louisiana Radiation Regulations (Parts A-K)
Louisiana Revised Statutues Anm. Section 30:1101-1116.1 (Nuclear Energy Radiation Control Act)

Louisiana is an agreement state. Licenses required for disposal, storage, and incineration from the Nuclear branch of the Dept. of Environmental Quality.

For incineration, the air quality permit is required, but a case-by-case evaluation will be made.

Limitations:

TSP - 0.2 gr/dscf
Opacity - 20%

The Water Pollution Control Division, along with Office of Air and Nuclear Energy Division will determine wastewater discharge standards on a case-by-case basis.

Burial restrictions include: (Ref. Regulation D.304 and D.307.)

1) Approval by Dept. of Natural Resources

2) Below specified curie content

3) Minimum depth of 4 feet

RECORD No. : 60

4) Separation of burial pits by 6 feet

5) No use of salt domes.

IMPACT ON TREATMENT:

Key words: disposal, incineration, agreement state

Impact on processing will be minimal. Incinerator charge rates and materials may be limited by air quality restrictions. Disposal of contaminated equipment may be inhibited by disposal restrictions.

RECORD No. : 61

DOCUMENT TYPE : State Survey

DOCUMENT NUMBER or CITATION: SL-SS14

DOCUMENT DATE : May 22, 1985

DOCUMENT TITLE : Maine State Survey and Associated Documents

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Dept. of Environmental Protection

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE: Effluent

SECONDARY LLRW PHASES (P, T, S, or D): S

COMPACT REGION: STATE: Maine

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CONSTRAINT DESCRIPTION:

Maine Revision Statutes, Title 38, Section 14A

Maine is not an agreement state; however, both NRC and state DEP permits are required for all LLRW storage, treatment, of disposal (except short term onsite storage).

Incinerator permits are required from the Maine DEP.

Limitations:

TSP - 0.2 gr/dscf (corrected at 12% CO)
Opacity - 20%

Maine state wastewater discharge permit is required by the DEP, Bureau of Water Quality. Radioactivity releases will be determined by NRC and DEP Bureau of Radiation. Nonradioactive releases will be determined by EPA, and agreed upon by the DEP, Bureau of Water. A $10/cubic foot service fee for waste generated and shipped is levied on all LLWR through December 31, 1985. Municipal participation in LLRW disposal site licensing review is required.

RECORD No. : 61

IMPACT ON TREATMENT:

Key words: costs, incineration, permits

Direct impact on processing is currently limited. Air quality restrictions may restrict incineration of LLRW wastes. Hearings and municipal participation may hinder disposal site development resulting in stricter disposal criteria, greater need for volume reduction and storage, and higher costs. Volume fee encourages VR and delayed shipment encouraging storage.

RECORD No. : 62

DOCUMENT TYPE : State Survey

DOCUMENT NUMBER or CITATION: SL-SS15

DOCUMENT DATE : May 20, 1985

DOCUMENT TITLE : Maryland State Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Maryland Dept. of Health and Mental Hygiene, Waste Management Administration

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Appalachian STATE: Maryland

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CONSTRAINT DESCRIPTION:

Maryland Code Ann., Section 7, Parts 201-268 (Hazardous Wastes)
Maryland Code Ann., Section 8, Parts 101-108; 201-205; and 402 (Radiation)
Maryland Code Ann., Section 9, Part 100 et seq.
Code of Maryland Regulations (COMAR), Section 10, Part 51 (Hazardous Waste)
Code of Maryland Regulations (COMAR), Section 10, Part 14 (Material Users)

Maryland is an agreement state. A radioactive material user's license and a hazardous waste permit are required.

Incineration requires a Treatment Facility Permit.

Limitations:

TSP - 0.03 gr/dscf to 0.10 gr/dscf
Opacity - 20%

NPDES permit required from Dept. of Health, Water Division and the Waste Management Administration. Limiations for wastewater discharge set on case-by-case basis.

Disposal criteria currently in effect are intended for disposal in sewage systems, incineration, or burial of large contaminated equipment.

RECORD No. : 62

IMPACT ON TREATMENT:

Key words: costs, incineration, permits

Impact on treatment is minimal. Incinerator load rates and materials may be affected by non-radiological emission restrictions.

RECORD No. : 63

DOCUMENT TYPE : State Survey

DOCUMENT NUMBER or CITATION: SL-SS30

DOCUMENT DATE : June 4, 1985

DOCUMENT TITLE : Massachusetts State Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Dept. of Public Health, Radiation Control Program

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE: Effluents

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Northeast STATE: Massachusetts

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CONSTRAINT DESCRIPTION:

Massachusetts is developing regulations but currently defers all regulation to NRC jurisdiction.

Air limitations:

TSP - 0.05 gr/dscf (corrected at 12% CO) for 50 tons/day or more

Opacity -

Wastewater discharge: NPDES permit requirements set by U.S. EPA with DEQE. Radiation limits set by U.S. NRC.

IMPACT ON TREATMENT:

Key words: jurisdiction, incineration

Impact on treatment is currently negligible due to state deferment to NRC jurisdiction. Development of the northeast compact and state regulations may yield future impact.

Restrictions on non-radioactive pollutants may impact use of incinerators.

RECORD No. : 64

DOCUMENT TYPE : State Survey

DOCUMENT NUMBER or CITATION: SL-SS16

DOCUMENT DATE : May 17, 1985

DOCUMENT TITLE : Michigan State Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Dept. of Public Health, Radiological Division

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Midwest STATE: Michigan

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CONSTRAINT DESCRIPTION:

Michigan Statutes Annotated, 14:15-13501 to -1353b (Radiation Control Laws) 14:528-351 to -352 (Radiation Disposal) 4:146 (31) (LLRW Compact)

Michigan defers to NRC regulations; it is not an agreement state.

Air pollution emissions permit from Dept. of Natural Resources for an incinerator:

TSP - 0.1 lb/1000 lb gas
Opacity - 20%

Michigan Dept. of Natural Resources, Surface Water Quality Division, will establish the water quality standards. An NPDES permit is required. The NRC limitations will apply to radiological releases.

Disposal site regulations are being developed.

IMPACT ON TREATMENT:

Key words: incineration

Impact on processing is currently minimal. Incineration loadings may be affected by nonradiological air quality restrictions. Disposal criteria when developed may impact processing.

RECORD No. : 65

DOCUMENT TYPE : State Survey

DOCUMENT NUMBER or CITATION: SL-SS17

DOCUMENT DATE : May 16, 1985

DOCUMENT TITLE : Minnesota State Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Minnesota Pollution Control Agency

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Midwest STATE: Minnesota

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CONSTRAINT DESCRIPTION:

Minnesota Statutes Annoted, Section 144.12 (General Radiation Statute)

Minnesota is not an agreement state; NRC jurisdiction applies to all radioactive processes regulation.

1) Incineration: NRC Regulation for radiological emissions.

Limitations for nonradioactive emissions:

TSP - 0.3 gr/dscf
Opacity - 20%

2) Water discharge permit required by PCA. Limitations established at time of application in conjunction with NRC.

3) A fee on waste shipped of $0.85/cubic foot is levied.

IMPACT ON TREATMENT:

Key words: costs, volume reduction, incineration

Impact on processing is moderate.

1) Incentive for volume reduction due to volume fees.

2) Air quality regulation may limit incinerator usage.

RECORD No. : 66

DOCUMENT TYPE : State Survey

DOCUMENT NUMBER or CITATION: SL-SS18

DOCUMENT DATE : May 20, 1985

DOCUMENT TITLE : Mississippi State Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Mississippi Dept. of Health, Div. of Radiological Health

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): D S T

COMPACT REGION: Southeast STATE: Mississippi

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CONSTRAINT DESCRIPTION:

Mississippi Code Annotated, Section 45-14-1 to -14-41 (Radiation Safety), Section 57-47-1 to -47-9 (Compact.)
Mississippi is an agreement state.
Regulations for Control of Radiation in Mississippi Part 801C100 (Mississippi State Board of Health Environmental Regulations)

State defers to NRC on nuclear power plant operations. Mississippi is an agreement state. State radioactive materials license required from Dept. of Health for offsite activities.

Incineration: Air construction permit from Bureau of Pollution Control, Dept. of Natural Resources.

Limitations, depending on location:

TSP - 0.1 gr/dscf
Opacity - 20%

or

TSP - 0.2 gr/dscf
Opacity - 40 %

Existing disposal restrictions are intended for: disposal in sewage systems, small scale incineration, and contaminated equipment burial.

RECORD No. : 66

NPDES permit required from Bureau of Pollution Control, DNR. Nonradioactive limitations set by DNR; radioactive discharge limitations set by NRC/Dept. of Health.

IMPACT ON TREATMENT:

Key words: disposal, incineration, agreement state

Impact on processing is minimal. Incineration loadings may be impacted by air quality constraints.

RECORD No. : 67

DOCUMENT TYPE : State Survey

DOCUMENT NUMBER or CITATION: SL-SS19

DOCUMENT DATE :

DOCUMENT TITLE : Missouri State Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Missouri Division of Health, Bureau of Radiological Health

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Midwest STATE: Missouri

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CONSTRAINT DESCRIPTION:

Missouri Statutes Annotated, Section 192.400 - 192.490 (Radiation Safety Act)

State defers jurisdiction to NRC for radiological restrictions. Missouri is not an agreement state.

Incineration: State air permit required for construction issued by Air Pollution Control Division, Dept. of Natural Resources.

Limitations:

TSP - 0.3 gr/dscf (corrected 12% Co)
Opacity - 20%

Nonradioactive state water discharge (NPDES) permit required by DNR. Limitations set on a case-by-case basis; radioactive limitations set by NRC.

IMPACT ON TREATMENT:

Key words: incineration

Impact on processing will be minimal. Incineration loadings may be affected by non-radioloical air quality standards.

RECORD No. : 68

DOCUMENT TYPE : State Survey

DOCUMENT NUMBER or CITATION: SL-SS01

DOCUMENT DATE : May 21, 1985

DOCUMENT TITLE : Nebraska State Survey for Low Level Radioactive Waste Regulatory Constraints Study

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Dept. of Health, Division of Radiological Health

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Central STATE: Nebraska

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CONSTRAINT DESCRIPTION:

Radiation Control Act: Revised Statutes of Nebraska, Section 71-3501 through 71-3519 (Radiation Control Law). No state regulations exist. Currently, all LLRW is regulated by NRC jurisdiction regarding radioactive effluents from power facilities. Nebraska is an agreement state.

The Department of Environmental Control, Air and Water Division:

Gaseous Effluent Mass Particulate Limit - 0.2 gr/dscf
Gaseous Effluent Opacity - 20%

Liquid wastewater discharge requires NPDES permit from the Department of Environmental Control.

A fee for state inspection expenses not to exceed $2,000 per month may be collected by the Dept. of Health.

RECORD No. : 68

IMPACT ON TREATMENT:

Key words: agreement state, incineration, costs, opacity

Impact on radwaste systems will be minimal. Incineration charge rates and feed materials may be restricted due to non-radiological pollution restictions.

Liquid effluents may be limited by NPDES permit restrictions set on a case-by-case basis.

RECORD No. : 69

DOCUMENT TYPE : State Survey

DOCUMENT NUMBER or CITATION: SL-SS33

DOCUMENT DATE : July 31, 1984

DOCUMENT TITLE : Nevada State Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Nevada Dept. of Human Resources

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): D S T

COMPACT REGION: Rocky Mountain STATE: Nevada

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CONSTRAINT DESCRIPTION:

Refer to State Regulations Chapter 49: Nevada Regulations for Radiation Control.

The regulations apply to all non-power plant facilities. (Nevada is an agreement state.) The regulations apply to disposal facilities as well as other facilities not directly related to the power fuel-cycle.

- Disposal regulations are reflected in the Beatty Disposal Facility License (File D-015.)

IMPACT ON TREATMENT:

Key words: license, disposal, agreement state, packaging

Impact on processing is significant in that the regulation provides the basis for the Beatty Site License.

RECORD No. : 70

DOCUMENT TYPE : State Survey

DOCUMENT NUMBER or CITATION: SL-SS34

DOCUMENT DATE : May 22, 1985

DOCUMENT TITLE : New Hampshire State Survey and Associated Documents

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Dept. of Health & Welfare Division of Public Health Services

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): T S D

COMPACT REGION: STATE: New Hampshire

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CONSTRAINT DESCRIPTION:

New Hampshire is an agreement state.

New Hampshire revised statutes Section 25.56 to 125.76 Radiological Safety

Section 125.77 g to K (LLRW Management)

*New Hampshire rules for control of radiation: HE-P Section 2000 to 2070:

1) NRC jurisdiction over LLRW activities associated with power plants

2) LLRW incinerators licensed by state Dept. of Health in accordance to 10 CFR 20 regulations

Also, New Hampshire resources permit for installation:

TSP = .2 gr/dstf for 2.4 tons/day charge or more.
Opacity = 20%

3) NPDES permit from water supply and Pollution Control Agency for water discharge.

RECORD No. : 70

4) Users, and handlers of source material are required to be registered or licensed by the State Radiation Control Agency.

5) Disposal site criteria are established in the associated documents.

IMPACT ON TREATMENT:

Key words: license, agreement state, incineration

Processing will be impacted in the following ways:

1) TSP and opacity requirements may limit the kinds and the charge rates for materials to be incinerated. Incinerator cost effectiveness may be reduced.

2) Disposal site criteria will impact processing if New Hampshire becomes the host state for the northeast compact site. However, the site criteria as proposed are quite similar to current NRC restrictions and current disposal criteria. No major impact on current processing practices is expected.

RECORD No. : 71

DOCUMENT TYPE : State Survey

DOCUMENT NUMBER or CITATION: SL-SS35

DOCUMENT DATE :

DOCUMENT TITLE : New Jersey State Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Dept. of Environmental Protection

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Northeast STATE: New Jersey

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CONSTRAINT DESCRIPTION:

New Jersey Admin. Code Sections 26:2D-1 to 26:2D-22
New Jersey Admin. Code Sections 32:31-1 to 32:31-11 Compact Legislation

- New Jersey differs all regulation of radiological processes to the NRC and therefore has no LLRW regulation in effect (not an agreement state.) Department of Environmental Protection does have broad powers to establish regulation but has not exercised authority.

- incinerators - installation and operation permits required from bureau of air pollution control and from the Dept. of Environmental Protection Bureau of Radiation Control.

IMPACT ON TREATMENT:

Key words: jurisdiction, incineration

Impact on processing will be negligible except for potential regulation of incineration and non-radiological pollutants.

RECORD No. : 72

DOCUMENT TYPE : State Survey

DOCUMENT NUMBER or CITATION: SL-SS20

DOCUMENT DATE :

DOCUMENT TITLE : New York State Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Department of Health, Bureau of Environmental Radiation

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE: New York

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CONSTRAINT DESCRIPTION:

The state defers to NRC jurisdication for all onsite activities. The Department of Environmental Conservation (DEC) regulates air and water discharges.

An air permit would have to be obtained from the DEC for an incinerator. Nonradioactive limitations would be set by DEC:

TSP - (sliding scale)
100 to 1000 lb/hr charge rate

Opacity - 20%

Radioactive air emissions limitations set by NRC. DEC regulation of all nonradioactive effluents based on existing state water standards. Permit required for wastewater discharge from DEC. Legislation for disposal facility establishment is being prepared.

IMPACT ON TREATMENT:

Key words: agreement state, incineration

Current impact on processing is negligible. Incineration loading may be affected by air quality standards. Development of disposal site criteria will impact processing, but it is currently unclear how significant the affects will be.

RECORD No. : 73

DOCUMENT TYPE : State Survey

DOCUMENT NUMBER or CITATION: SL-SS21

DOCUMENT DATE :

DOCUMENT TITLE : North Carolina State Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Dept. of Human Resources, Radiation Protection Section

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Southeast STATE: North Carolina

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CONSTRAINT DESCRIPTION:

North Carolina Gen. Statutes, Section 104(3)-1 to -24
10 NCAC 3(g) (Administrative Code)

North Carolina is an agreement state; therefore, NRC regulation presides over power reactor facilities.

A radioactive materials license from the Dept. of Human Resources (DHR) is required. A state air discharge permit is required from the Dept. of Natural Resources (DNR).

Limitations:

TSP - 0.08 gr/dscf (12% CO) or less (no regulation)
greater than - 0.08 gr/dscf emissions limit - 0.2 lbs/hr
(100 lbs/hr charging rate or less).

State water standards are more stringent than NRC. NPDES permit from DNR required; limitations set on case-by-case basis.

- Public hearing required for licensing of all LLRW processing or disposal facilities under state jurisdiction (power facility sites are under NRC jurisdiction.)

RECORD No. : 73

IMPACT ON TREATMENT:

Key words: agreement state, license, incineration, public hearing

Impact on processing is minimal.

- Incineration loadings may be influenced by air quality standards. Public hearings may influence disposal criteria or location of new facilities which in turn influence processing.

RECORD No. : 74

DOCUMENT TYPE : State Survey

DOCUMENT NUMBER or CITATION: SL-SS22

DOCUMENT DATE : May 10, 1985

DOCUMENT TITLE : Ohio State Survey and Associated Documents

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Ohio Dept. of Health, Bureau of Environmental Health, Radiological Health Unit

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Midwest STATE: Ohio

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CONSTRAINT DESCRIPTION:

Ohio Revised Code, Ch. 3704 (Overall Regulatory Program) Ohio Revised Code, Ch. 3701.90 to -.98 (General Radiation Law) Ohio Administrative Code (OAC) 3745-31 (permit to install) OAC 3745-17 (TSP limitations) Rules 3701-38-13 and 3701-38-16 (OAC Radiation Protection Rules)

Ohio is not an agreement state; power plant facilities are regulated by the NRC. A permit to install an incineration unit is required from Ohio EPA and reviewed by Dept. of Health.

Limitations: Best Available Technology (BAT)

TSP - 0.10 to 0.20 lbs/100 lbs charge
Opacity - 20%

Wastewater discharges are regulated by Ohio EPA. NPDES permit incorporates water quality standards for the facility.

RECORD No. : 74

IMPACT ON TREATMENT:

Key words: incineration

Impact on processing is negligible.

- Incineration loadings may be influenced by air quality standards. Such limitations may reduce the value of installing an incinerator.

RECORD No. : 75

DOCUMENT TYPE : State Survey

DOCUMENT NUMBER or CITATION: SL-SS32

DOCUMENT DATE : August 6, 1985

DOCUMENT TITLE : Oregon State Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Dept. of Human Resources, Div. of Health

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Northwest STATE: Oregon

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CONSTRAINT DESCRIPTION:

Oregon Administrative Rules 333-100-001 through 333-113-501
(Note: Rules being revised at this time.)

Oregon is an agreement state. NRC has jurisdiction over power facilities.

- Currently disposal within the state is forbidden.
- Storage for non power plant facilities is on a case-by-case basis.
- Incineration requires an installation permit for non-radioactive emissions. Emissions are restricted on a case-by-case basis. Air quality regulated by the Dept. of Environmental Quality, radiological releases are restricted by the Dept. of Human Resources.

IMPACT ON TREATMENT:

Key words: agreement state, permit, incineration

Impact on processing will be minimal. Incinerator loadings may be restricted due to nonradiological pollution controls. This limitation may discourage installation of incinerators.

RECORD No. : 76

DOCUMENT TYPE : State Survey

DOCUMENT NUMBER or CITATION: SL-SS23

DOCUMENT DATE : May 10, 1985

DOCUMENT TITLE : Pennsylvania

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Bureau of Radiation Protection, Dept. of Environmental Resources (DER)

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Appalachian STATE: Pennsylvania

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CONSTRAINT DESCRIPTION:

Pennsylvania is not an agreement state. NRC regulates all radiological plant functions; however, Pennsylvania DER will supplement NRC license if it feels additional areas of constraint are required. Currently, DER review is on a case-by-case basis.

Act 147 of 1984 (General Radiation Protection Act).

Air emission limits determined on a case-by-case basis, but generally:

TSP - 0.1 gr/dscf (corrected for 12% CO_2)
Opacity - 20%

State water quality standards must be met. (None of Pennsylvania's standards are more stringent than those found in NRC's Appendix I.)

IMPACT ON TREATMENT:

RECORD No. : 77

DOCUMENT TYPE : State Survey

DOCUMENT NUMBER or CITATION: SL-SS31

DOCUMENT DATE : May 8, 1985

DOCUMENT TITLE : South Carolina State Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Dept. of Health and Environmental Control

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): T S D

COMPACT REGION: Southeast STATE: South Carolina

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CONSTRAINT DESCRIPTION:

South Carolina is an agreement State and defers to NRC all onsite power reactor LLRW activities.

General Radiation Control Law - South Carolina Code Section 13-7-10 to 13-7-85

Incineration: Responsibility of Dept. of Health and Environmental Control, Division of Engineering Services and the Bureau of Radiological Health Emission limits set on case-by-case basis.

TSP - 0.5 lbs/MBtu heat output
Opacity - 20%

If PSD Rules apply, the "Best Available Technology" may dictate more stringent limits.

Wastewater discharge: Regulated by NRC and Division of Engineering Services effluent monitoring requirements would be established in wastewater discharge permit. To date, water quality standards are only set for uranium.

RECORD No. : 77

IMPACT ON TREATMENT:

Key words: agreement state, Barnwell, incineration

Impact on processing is minimal as far as direct regulation; however, disposal site licensing is a state responsibility. The Barnwell License (D-023, License #097) and the Burial Criteria (D-024,) have significant impact on the acceptable waste form and packaging.

Incineration loading and charge rates may be affected by the non-radioactive effluent restrictions.

RECORD No. : 78

DOCUMENT TYPE : State Survey

DOCUMENT NUMBER or CITATION: SL-SS24

DOCUMENT DATE : May 13, 1985

DOCUMENT TITLE : Tennessee State Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Dept. of Health and Environment, Div. of Radiological Health

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Southeast STATE: Tennessee

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CONSTRAINT DESCRIPTION:

Tennessee Code Ann., Sections 68-23-201 to -414
(General Radiation Safety Statute)

Tennessee is an agreement state.

Tennessee has no operating nuclear power plants, and no legislation specifically governing LLRW.

Air Emission Limitations:

TSP - 0.2% of charge rate (up to 2000 lb/hr)
Opacity - 20%

Limits on wastewater discharge would be set by the NRC in conjunction with the Division of Health.

IMPACT ON TREATMENT:

Key words: agreement state, incineration

Impact on processing is minimal. Incineration loadings may be limited by air quality standards, reducing the value of installing an incinerator for some DAW or resins.

RECORD No. : 79

DOCUMENT TYPE : State Survey

DOCUMENT NUMBER or CITATION: SL-SS25

DOCUMENT DATE : May 10, 1985

DOCUMENT TITLE : Texas State Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Dept. of Health, Bureau of Radiation Control (DOH)

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE: Texas

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CONSTRAINT DESCRIPTION:

Low level radioactive waste disposal authority act (Texas Code Ann., Article 4590F-1)
Texas Radiation Control Act (Texas Code Ann., Article 4590F)
Texas Regulations for Control of Radiation

Texas is an agreement state with NRC. LLRW regulations are identical to NRC regulations. The DOH issues control licenses authorizing LLRW handling activities, including disposal facilities.

A public hearing will be required prior to licensing any disposal facility. A public hearing must be held upon request of anyone affected by revision of facility license.

Air emission limitations based on case-by-case, best available control technology.

Texas Water discharge permit needed from the Dept. of Water Resources. This permit issued in conjunction with the NPDES permit from EPA.

IMPACT ON TREATMENT:

Key words: agreement state

Impact on processing will be minimal.

RECORD No. : 79

- Public hearings may make license criteria for disposal facilities more stringent which would impact processing.

- Incinerator loadings may be limited by air quality standards reducing functional value of installing an incinerator.

RECORD No. : 80

DOCUMENT TYPE : State Survey

DOCUMENT NUMBER or CITATION: SL-SS26

DOCUMENT DATE :

DOCUMENT TITLE : Vermont State Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Agency of Human Services, Div. of Occupational & Radiological Health

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE: Vermont

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CONSTRAINT DESCRIPTION:

Vermont Stat. Ann., Sections 18:1651 to :1657 (Radiation Safety Law)
Vermont Air Pollution Control Regulations, Rules 5-211, 5-231

Vermont is not an agreement state; all LLRW activities are regulated by the NRC.

The Dept. of Health and the Agency of Environmental Conservation regulate the siting and environmental review process via the Act 250 Permit Program.

Air limitations as follows:

TSP - (less than 50 tons/day) 0.10 lbs/100 lbs of refuse burned

Opacity - 20%

Wastewater discharge: may not exceed harmful limits (case-by-case).

Example Vermont Yankee limitations:

Average Annual 1/100 of 10 CFR 20 Table 2 limits
Maximum Limit of 1/10 of 10 CFR 20 Table 2
Maximum Annual total of 5 curies from all nuclides except tritium.

RECORD No. : 80

IMPACT ON TREATMENT:

Key words: incineration

Impact on treatment is negligible.

Incineration loading may be limited by air quality standards.

RECORD No. : 81

DOCUMENT TYPE : State Survey

DOCUMENT NUMBER or CITATION: SL-SS27

DOCUMENT DATE : May 9, 1985

DOCUMENT TITLE : Virginia State Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Dept. of Health, Office of Health Protection and Environmental Management

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): T D

COMPACT REGION: Southeast STATE: Virginia

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CONSTRAINT DESCRIPTION:

Code of Virginia, Title 31.1, Chapter 6, Article 8, Sections 32.1 to -.12, Ionizing Radiation Regulations and Rules.

Virginia is an agreement state, and so defers to the NRC for activities dealing with power plants.

State Radiation Materials License issued on case-by-case basis for any activities not covered by NRC jurisdication.

Air emission limits are analyzed on a case-by-case basis; best available control technology would be imposed.

Wastewater discharge: Radionuclide concentrations based on case-by-case review by Water Pollution Control Board. Permitee required to monitor effluents.

Disposal restrictions are currently determined on a case-by-case basis.

IMPACT ON TREATMENT:

Key words: jurisdiction, incineration, effluents

RECORD No. : 81

Impact on processing is indirect and minimal since the NRC maintains jurisdiction over power facilities and fuel cycle facilities. Licensing of disposal sites still requires state regulation and enforcement since Virginia is an agreement state. As the compact develops, more definite disposal restrictions will be determined.

RECORD No. : 82

DOCUMENT TYPE : State Survey

DOCUMENT NUMBER or CITATION: SL-SS28

DOCUMENT DATE : May 13, 1985

DOCUMENT TITLE : Washington State Survey and Associated Documents

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Dept. of Social and Health Services; Radiation Control Section

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Northwest STATE: Washington

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CONSTRAINT DESCRIPTION:

Revised Code of Washington, Chapter 70.98
Radiation Protection Rules
Washington Administration Code 402-24-220
Washington Administration Code 173-201-035

The Dept. of Ecology is developing radionuclide emission restrictions; state defers to NRC until developed.

The Energy Facility Site Evaluation Council and the Dept. of Ecology set limitations for wastewater deischarge in the NPDES permit based on the state code, NRC restrictions.

Hanford disposal site permit required if waste is to be disposed of in state.

IMPACT ON TREATMENT:

Key words: Incineration, disposal site

Direct impact on processing will be minimal. The major impact will be a result of state license to the Hanford disposal facility. (D-013, License WN-10-19-W). The impact of this document is not due to direct restriction but rather by the power to license or not to license a facility. This is minimal since licensees of the NRC are granted a state license via reciprocal recognition.

RECORD No. : 83

DOCUMENT TYPE : State Survey

DOCUMENT NUMBER or CITATION: SL-SS29

DOCUMENT DATE : May 8, 1985

DOCUMENT TITLE : Wisconsin State Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Dept. of Health and Social Services, Division of Health

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Midwest STATE: Wisconsin

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CONSTRAINT DESCRIPTION:

Wisconsin Statutes, Sections 140.50 to -.64 (Radiation Protection Act)
Wisconsin Administrative Code, HSS 157, NR 154.11, 154.13, 154.14, 154.15, 154.19

Wisconsin is not an agreement state, and so defers to the NRC.

The Dept. of Natural Resources, Air Management Bureau would set limitations on emissions of:

TSP - 0.3 lbs/1000 lbs of exhaust gas from incinerator less than 500 lbs/hr
Opacity - 20%
NOx - 0.7 lbs/MBtu or lower, depending on size
Organic Compounds, Hydrochloric Acid Mist, odors and hazardous pollutants would be reviewed also.

Limitations would be more restrictive in Milwaukee and Green Bay areas.

Wastewater discharge limitations are the same as those set by NRC. If certain isotopes are not regulated by NRC, the state will set limits on case-by-case basis.

RECORD No. : 83

IMPACT ON TREATMENT:

Key words: Incineration, agreement state, NRC jurisdiction

The impact on processing will be neglibible except for incineration. Limits on incineration may affect the types of incinerated material and the charge rates.

RECORD No. : 84

DOCUMENT TYPE : American National Standard

DOCUMENT NUMBER or CITATION: ANSI-40.35-1984

DOCUMENT DATE :

DOCUMENT TITLE : Volume Reduction of Low Level Radioactive Waste

GOVERNMENTAL LEVEL : Private

ISSUING AGENCY : American Nuclear Society/ANSI

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE: Volume Reduction

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

The document provides guidance and standards for the design and operation of LLRW volume reduction systems. It includes standards for:

- System design requirements
- Waste handling and preparation
- General equipment requirements for; tanks, pumps, piping, valves, filters, offgas control, ion exchange, mixers, and shredders
- General control and monitoring instrumentation
- Secondary gaseous, liquid and solid waste treatment
- Physical arrangement for process, operations and maintenance, and shielding
- System construction and testing.

RECORD No. : 84

IMPACT ON TREATMENT:

Key words: volume reduction

The ANSI standards for LLRW volume reduction provide a codification of acceptable industry practices. They should be considered when designing a system or chosing equipment; however, they do not have the same magnitude of impact that the federal regulations do. Generally the impact is that of sound engineering judgement based on past practices.

RECORD No. : 85

DOCUMENT TYPE : American National Standard

DOCUMENT NUMBER or CITATION: ANSI/ANS-55.1-1979

DOCUMENT DATE : March 26, 1979

DOCUMENT TITLE : Solid Radioactive Waste Processing Systems for Light Water Cooled Reactor Plants

GOVERNMENTAL LEVEL : Private

ISSUING AGENCY : American Nuclear Society/ANSI

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

The standard provides design and construction guidance for solid radioactive waste processing systems. Solid wastes include spent resins, filter sludges, and evaporator and reverse osmosis concentrates as well as spent filters and DAW. The standard covers the following design considerations:

- Process design requirements
- System design requirements
- Equipment requirements for tanks, pumps, valves piping, waste pretreatment, solidification agent handling, mixing, packaging, container handling, filter disposal, and DAW compactors
- Controls and instrumentation
- Physical arrangements for shielding, maintenance, fire protection and ALARA
- System Capacity and redunancy
- Construction and testing
- Cleaning and decontamination

RECORD No. : 85

The document provides tabulations of applicable fabrication materials and testing codes which should be satisfied.

IMPACT ON TREATMENT:

Key words: resins, filter sludge, DAW, concentrates, solidification, packaging, testing, decontamination

The ANSI standard for LLRW solid waste systems is broad in scope yet provides only general design and construction guidance which reflects current industry practice and good engineering judgement. It should be used more as a guide than a constraint. Impact is significant in scope but minimal in terms of security. Per NRC Regulatory Guide 1.143 these standards should be followed.

RECORD No. : 86

DOCUMENT TYPE : American National Standard

DOCUMENT NUMBER or CITATION: ANSI/ANS-55.4-1979

DOCUMENT DATE : January 29, 1979

DOCUMENT TITLE : American National Standard for Gaseous Radioactive Waste Processing Systems for Light Water Reactor Plants

GOVERNMENTAL LEVEL : Private

ISSUING AGENCY : American Nuclear Society/ANSI

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE: Off gas

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

Gives minimum design, construction and performance requirements for gaseous radwaste systems. Alternative methods for treating and releasing off gas are discussed along with sizing, capacity, equipment arrangement and redundancy. Instrumentation and control requirements are given as well as operating guidance to assure all objectives and requirements are met.

IMPACT ON TREATMENT:

Codifies industry standards and good engineering practice as they apply to off gas system design and operation. Impact is minimal. Referenced in Regulatory Guide 1.143 as a reference for off gas system design.

RECORD No. : 87

DOCUMENT TYPE : American National Standard

DOCUMENT NUMBER or CITATION: ANSI/ANS-55.6-1979

DOCUMENT DATE : April 24, 1984

DOCUMENT TITLE : American National Standards Liquid Radioactive Waste Processing System for Light Water Reactor Plants

GOVERNMENTAL LEVEL : Private

ISSUING AGENCY : American Nuclear Society/ANSI

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE: Liquid

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

The standard provides minimum design, construction and performance requirements for liquid radioactive waste processing systems. The Liquid Radwaste System is defined as the system for collecting and processing liquid radwaste beginning at the reactor coolant pressure boundary and discharge lines (including discharge from the steam generator blowdown system) and the sump and floor drains and finishing with the discharge to the environment, recirculation for re-use of entrance to the solidification system. The standard covers requirements for:

- General system and process design and QA.
- Equipment requirements for tanks, sumps, pumps, valves, piping, ion exchange, filters, evaporators and reverse osmosis.
- Controls, instrumentation and process and effluent monitoring.
- Physical arrangements regarding maintenance, operation and accumulated activity.
- Capacity and redundancy of the systems.
- Operation, maintenance and testing procedures.

RECORD No. : 87

This document provides tabulations of the applicable fabrication and testing codes which the system must satisfy.

IMPACT ON TREATMENT:

Key words: liquid radwaste

The ANSI standard for LLRW liquid processing systems is broad in scope, yet provides only general design and construction guidance which reflects current industry practice and good engineering judgement. It should be used more as a guide than a constraint. Impact is significant in scope but minimal in severity. Per NRC Regulatory Guide 1.143 this standard should be followed.

RECORD No. : 88

DOCUMENT TYPE : ANI Bulletin

DOCUMENT NUMBER or CITATION:

DOCUMENT DATE :

DOCUMENT TITLE : Radwaste Systems Using Combustible Materials/Components

GOVERNMENTAL LEVEL : Private

ISSUING AGENCY : American Nuclear Insurers

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): S T

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

In 1977 ANI (Formerly NEI-PIA) issued the specification that "Equipment, components, and materials used for handling, storing and processing waste materials containing radioactive isotopes should be totally non-combustible. In response to requests for re-evaluation ANI will now, on a case-by-case basis, evaluate systems for the vendors of new LLRW processing systems. The document outlines ANI's basic position and guidelines for fire protection of radwaste systems. Totally non-combustible materials are not mandatory but are suggested. Systems should be approved by ANI. Fire protection, containment and HVAC measures and the applicable design codes are discussed for general radwaste systems which have combustible materials. (Ref. P-066)

IMPACT ON TREATMENT:

Key words: fire protection, containment, asphalt, DAW.

This document discourages the use of combustible materials. (Earlier ANI positions rejected the use of combustible materials). This impacts the processing and storage of DAW and the use of some solidification systems such as asphalt and polymer based agents. Fire protection, containment, and detection systems may discourage the use of combustible materials.

RECORD No. : 89

DOCUMENT TYPE : ANI Bulletin

DOCUMENT NUMBER or CITATION:

DOCUMENT DATE : December 31, 1980

DOCUMENT TITLE : ANI/MAERP Guidelines for the Werner & Pfleider Radwaste Volume Reduction and Solidification System

GOVERNMENTAL LEVEL : Private

ISSUING AGENCY : American Nuclear Insurers

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

In the document ANI establishes specific fire protection guidelines for use of the Werner and Pfleider volume reduction and solidification system. In addition to these requirements, installation details must also be reviewed by ANI for approval.

IMPACT ON TREATMENT:

Key words: fire protection, solidification, Werner and Pfeider

The design and installation of the system must include the prescribed fire protection measures. Actual processing should not be greatly constrained. Overall impact will only be based on the relative capital costs of the entire system, as well as fire protection costs.

RECORD No. : 90

DOCUMENT TYPE : ANI Bulletin

DOCUMENT NUMBER or CITATION:

DOCUMENT DATE :

DOCUMENT TITLE : ANI/MAERP Guidelines for the DOW system. Solidification of Low Level Radioactive Wastes From Nuclear Power Plants

GOVERNMENTAL LEVEL : Private

ISSUING AGENCY : American Nuclear Insurers

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE: Solidification

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

The document establishes specific ANI fire protection guidelines for the use of the DOW solidification system. Complete details of the solidification system installation plan must be analyzed and approved by ANI.

IMPACT ON TREATMENT:

Key words: fire protection, DOW solidification

The capital cost will impact the choice of the system. Design and construction will be influenced by the fire protection measures required.

RECORD No. : 91

DOCUMENT TYPE : ANI Bulletin

DOCUMENT NUMBER or CITATION:

DOCUMENT DATE :

DOCUMENT TITLE : ANI's Recommendations for Carbon Filters

GOVERNMENTAL LEVEL : Private

ISSUING AGENCY : American Nuclear Insurers

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE: Off gas

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

The document provides generic fire protection requirements for the use of carbon filters.

1) Hydraulically designed automatic water spray system, utilizing directional solid-cone spray nozzles controlled by an approved deluge valve, provided for a charcoal filters.

2) Horizontal led spray should be above the bed and evenly distributed.

3) Down stream detectors with a control room annunciator. (temperature detectors)

4) Spray system should be equipped with local and control room annunciators.

5) The air flow should terminate.

RECORD No. : 91

IMPACT ON TREATMENT:

Key words: fire protection, carbon filters, off gas, HVAC

The design of the off gas and gaseous radwaste systems will be required to consider fire protection for the carbon filter banks and process temperatures must be compatible with the safe conditions for the filter. Actual operation should be affected in the cases of drying of the filter bed when temperatures are elevated following the unlikely occurance of the beds becoming laden with water or ice.

RECORD No. : 92

DOCUMENT TYPE : ANI Bulletin

DOCUMENT NUMBER or CITATION:

DOCUMENT DATE : December 31, 1973

DOCUMENT TITLE : Radwaste Systems Using Combustible Materials/Component

GOVERNMENTAL LEVEL : Private

ISSUING AGENCY : American Nuclear Insurers

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): S T

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

The document provides radwaste systems design guidance regarding the use and protection of combustible materials and components.

1) Three hour fire barriers enclosing all buildings or areas containing storage or processing equipment which has a potentially combustible nature.

2) Stairways in approved musonary towers with 1 1/2 hour fire doors.

3) Storage tanks containing flamible liquids must be isolated with dikes 3-hour fire doors and flash arrestors.

4) One sq. ft. of vent for each 50-100 ft of floor space.

5) Automatic water spray systems in areas containing combustible materials or equipment associated with combustible materials.

6) Alarms in the locality and a control room ennunciator are required as part of an early warning fire detection system.

7) Process interlocks should be provided to shutdown the process flow safely.

RECORD No. : 92

8) Offsite transportation of combustible materials should be identified. (See P-067.)

IMPACT ON TREATMENT:

Key words: fire protection, combustible materials, HVAC

Particular attention should be placed on DAW processes and storage, and the use of combustible chemicals in the solidification agents. The necessary use of fire protection and containment systems may discourage the use of handling of potentially combustible materials.

RECORD No. : 93

DOCUMENT TYPE : INPO Good Practice

DOCUMENT NUMBER or CITATION: 82-001-OEN-09

DOCUMENT DATE : August 31, 1982

DOCUMENT TITLE : Low Level Radioactive Waste Management

GOVERNMENTAL LEVEL : Private

ISSUING AGENCY : INPO

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

The document provides a general guidance for the development of a volume reduction policy. The policy includes personnel awareness training, material control and segregation, and encouragement for a decontamination program. The main emphasis is placed on limiting the amount of material that must be disposed of as LLRW. Suggestions are predominately for DAW source reduction by limiting the materials with potential to become contaminated, segregation of contaminated and non-contaminated wastes and equipment, and decontamination or reuse of contaminated tools.

IMPACT ON TREATMENT:

Key words: DAW, decontamination, waste segregation, source reduction

Reducing waste volume generated can reduce the need for VR systems. The effort is to reduce the input volumes to the radwaste system. Maintenance programs and laboratory procedures will be impacted significantly.

RECORD No. : 94

DOCUMENT TYPE : INPO Good Practice

DOCUMENT NUMBER or CITATION: CY-703

DOCUMENT DATE : November 1, 1983

DOCUMENT TITLE : Good Practice for Control of Chemicals in Nuclear Power Plants

GOVERNMENTAL LEVEL : Private

ISSUING AGENCY : INPO

PRINCPAL LLRW PHASE: Processing TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

CONSTRAINT DESCRIPTION:

The document outlines procedures for ordering, receiving, storage, use, and disposal of chemical stacks for use in Nuclear power facilities. Included are definitions, chemical classifications and approval and handling procedures.

IMPACT ON TREATMENT:

Key words: management, chemical

The procedures require a support and participation network of several levels of management and operations personnel.

RECORD No. : 95

DOCUMENT TYPE : INPO Good Practice Paper

DOCUMENT NUMBER or CITATION: CY-705

DOCUMENT DATE :

DOCUMENT TITLE : Detection of Hydrocarbons and Halogenated Hydrocarbons with Total Organic Carbon Analyzers

GOVERNMENTAL LEVEL : Private

ISSUING AGENCY : Institute of Nuclear Power Operations

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PRINCPAL LLRW PHASE: Processing TREATMENT TYPE: Liquid

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

The document discusses problems with obtaining representative sample of hydrocarbons in hold up tanks. It provides examples of adequate mixing arrangements to provide a homogeneous distribution for sampling, and it explains some of the limitations of TOC analyzers.

IMPACT ON TREATMENT:

Key words: halogenated hydrocarbons, oils, sampling, TOC analyzers

Impact on processing is small in that oil is not generally a major constituent of the liquids in radwaste hold up tanks. However, should hydrocarbons enter the demineralizer beds, significant cost of clean up and replacement of resins would be incurred.

SECTION 2.

STORAGE CONSTRAINTS

PROCESSING CONSTRAINTS - SORTED BY RECORD NUMBER

Document type	Document No.	Document title	Issuing agency	Doc. date	Rec No.
Generic Letter	81-36	Storage of Low-Level Radioactive Wastes at Power Reactor Sites	NRC	Nov 10, 1981	1
SECY Paper	80-511	Storage of Low Level Radioactive Wastes at Reactor Power Sites	NRC	Nov 18, 1980	2
SECY Paper	81-383	Storage of Low Level Radioactive Wastes	NRC	Jun 19, 1981	3
Docket	50-302	Draft NRC Licensing Position For "Safety Considerations for Temporary Onsite Storage"	NRC	Jun 2, 1980	4
		DRAFT: Interim Management Plan for Low Level Radioactive Waste in Illinois 1986-1992	Illinois Dept. of Nuclear Safety	May 1985	5

RECORD No. : 1

DOCUMENT TYPE : Generic Letter

DOCUMENT NUMBER or CITATION: 81-38

DOCUMENT DATE : November 10, 1981

DOCUMENT TITLE : Storage of Low-Level Radioactive Wastes at Power Reactor Sites

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Storage TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): P D

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

This document provides NRC's final position on the design basis and licensing of interim onsite storage facilities at power reactors.

For proposed increases in storage capabilities for LLRW the safety of the proposal must be evaluated by the licensee under 10 CFR 50.59. Added capacity may be installed if:

1) Existing license or technical specs. do not prohibit increased storage.

2) No unreviewed safety questions exist.

3) Increased storage capacity does not exceed projected generated wastes for 5 years. No waste should be stored more than 5 years without 10 CFR 30 approval.

If unreviewed safety questions exist, applications for license may be obtained through the NMSS pursuant to 10 CFR 30 accompanied by an environmental impact analysis.

- Licenses are issued for a 5 year period and may be renewed.

- Facility design and use must assure design basis consequences do not result in radiological doses greater than 10% of 10 CFR 100 limits.

RECORD No. : 1

- Containers material must be compatible with both waste form and environmental conditions to prevent corrosion.

- Unless containers are provided with gas generation vents that prohibit migration of radionuclide gas generating waste forms (such as BWR reactor water cleanup system resins) should not be stored more than 1 year.

- Periodic visual inspection of container integrity should be performed.

- Preferred location is within the plant protected area. A physical security and a restricted radiation area protection system must be established.

- Storage facilities should include monitoring of release pathways, provisions for collecting and sampling liquid drainage, and protection against environmentally instigated corrosion of containers.

IMPACT ON TREATMENT:

Key words: waste form, gas generation, container integrity, inspection, licensing

The document impacts the establishment and operations of onsite storage. It encourages stabilization of wastes through solidification.

RECORD No. : 2

DOCUMENT TYPE : SECY Paper

DOCUMENT NUMBER or CITATION: 80-511

DOCUMENT DATE : November 18, 1980

DOCUMENT TITLE : Storage of Low Level Radioactive Wastes at Reactor Power Sites

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Storage TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): P D

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

This document has been superseded entirely by Generic Letter 81-38. It is included for its historical value only.

The document establishes the initial licensing framework for on-site LLRW storage by establishing a 3-tiered system of licensing. (Amended by SECY 81-383, File Location S-002.)

1) Short term: 1 to 2 year storage capabilities for the plant licensed under 10 CFR 50.59 as part of the current operating license. Depends upon their being no unreviewed safety questions.

2) Intermediate: renewable 5 year onsite storage licensed via 10 CFR 30.

   - Although Part 30 licensing is normally under agreement state jurisdiction, the NRC will preside over intermediate storage licensing since it is considered an integral part of power plant operations.

   - Incremental impact in reactor operations and environmental impact reports are required for licensing.

   - The Price-Anderson indemnification will not be extended.

RECORD No. : 2

3) Long term (Life of Plant) Storage: greater than 5 years storage is currently being investigated by the NRC.

IMPACT ON TREATMENT:

Key words: Life of Plant, Onsite Storage, Licensing, Liability, Waste form

No impact presently since this document has been superseded by Generic Letter 81-38.

- Impact on actual radwaste processing must account for waste form stability during long term storage. Of particular concern is the potential for off-gasing of dewatered resins. Container integrity is also a consideration. Combustion and corrosion potential during storage must be addressed and may impact processing.

- There may be incentive to use greater volume reduction so as to better utilize storage space until disposal facilities become available.

- Using storage on a larger scale may alleviate pressure to quickly establish a burial facility.

RECORD No. : 3

DOCUMENT TYPE : SECY Paper

DOCUMENT NUMBER or CITATION: 81-383

DOCUMENT DATE : June 19, 1981

DOCUMENT TITLE : Storage of Low Level Radioactive Wastes

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Storage TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): P D

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

This document has been superseded entirely by Generic Letter 81-38. It is included for its historical value only.

The document amends SECY-80-511 (S-002) eliminating the two year short term storage license and incorporating a two tiered storage licence system.

Intermediate storage up to 5 years will be licensed under 10 CFR 50.59 if no unreviewed safety issues or license changes exist or are required. Otherwise use 10 CFR 30.

Long term life of plant storage is expected to fall under 10 CFR 30. Currently, only TVA has planned such storage and full licensing and design guidance is under investigation.

- Questions exist regarding 10 CFR 30 requirements for NRC involvement prior to construction - these must be resolved.

- Suggested Guidance - Shipment at earliest possible time reduces potential need to reprocess to meet revised burial criteria and it reduces exposures.

- Facility must maintain doses of less than 10% of 10 CFR 100 requirements throughout a design basis event.

RECORD No. : 3

- Waste should not be stored for a duration exceeding 5 years. Longer storage and greater quantities may be approved after 10 CFR 30 review.

- Onsite doses based on 10 CFR 20 including ALARA guidelines. Offsite doses restricted to 40 CFR 140 criteria.

Waste forms and containers must be environmentally compatible to minimize corrosion and reduced container integrity.

- Gas generation from organics must be minimized. Controlled offgasing vents may be necessary. Highly loaded resins should not be stored more than one year.

- Periodic (quarterly) visual inspection of container's integrity should be performed (video surveillance or representative sampling are acceptable).

- A security system including alarms, gates, and patrols is required.

- Structures are not required to meet seismic criteria; however, containment of spills should be assured by use of curbs and drains.

- Fire protection is not needed if combustible materials are minimal.

- Containers should not initiate fires (by chemical spontaneous combustion, heat retention, etc.)

- Containers and waste forms must meet burial and transportation requirements of 10 CFR 71 and 44 CFR 170.

While storage is acceptable as an interim measure, emphasis on the development and use of burial sites is encouraged.

RECORD No. : 3

IMPACT ON TREATMENT:

Key Words: Onsite Storage, Life of Plant Storage, Short term, Licensing, Waste form

No impact presently since this document has been superseded by Generic Letter 81-38.

Processing will be impacted in the following ways:

1) Storage will allow time for the development of burial sites.

2) Long term (greater than 5 years) storage will encourage the complete stabilization of more volatile waste forms such as spent resins which may cause off-gasing problems.

3) Additional floor drain inputs to the radwaste system will be needed.

4) DPW waste forms may require modification to prevent fire hazards.

RECORD No. : 4

DOCUMENT TYPE : Docket

DOCUMENT NUMBER or CITATION: 50-302

DOCUMENT DATE : June 2, 1980

DOCUMENT TITLE : Draft NRC Licensing Position For "Safety Considerations for Temporary Onsite Storage"

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Storage TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): P

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

This document has been superseded entirely by Generic Letter 81-38. It is included for its historical value only.

Any decision to incorporate onsite storage requires a 10 CFR 50.59 Safety Review of the areas of:

1) Radioactive Material and Effluent Control

2) Radiation Dose Control for Both Onsite and Offsite Individuals

3) Accident Prevention and Control.

Attached draft of the NRC position paper, "Safety Considerations For Temporary Onsite Storage."

- Steps should be taken to guarantee: the integrity of waste containers, radiation detection, fire protection, collection of leakage, and reprocessing.

The document outlines minimal design requirements for wet wastes, DAW, and solidified waste storage.

RECORD No. : 4

IMPACT ON TREATMENT:

Key words: fire protection, effluent, container integrity, dose rates, DAW, resins

No impact presently since this document has been superseded by Generic Letter 81-38.

The paper encourages the solidification and stabilization of wastes where ever possible. It also encourages shipment for disposal at the earliest possible time.

RECORD No. : 5

DOCUMENT TYPE :

DOCUMENT NUMBER or CITATION:

DOCUMENT DATE : May 1985

DOCUMENT TITLE : DRAFT: Interim Management Plan for Low Level Radioactive Waste in Illinois 1986-1992

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Illinois Dept. of Nuclear Safety

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PRINCPAL LLRW PHASE: Storage TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): D P

COMPACT REGION: STATE: Illinois

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CONSTRAINT DESCRIPTION:

Based on expected 1986 restrictions in disposal sites access.

1) Non-reactor generators will ship their LLRW as top priority based on inability to store.

2) Reactor waste generators and large industrial generators of LLRW will ship as much waste as possible.

3) Utilities and large industrial generators will provide interim onsite storage for waste that is restricted from the disposal sites.

4) Current plant licenses do not allow the storage of wastes produced at other sites.

RECORD No. : 5

IMPACT ON TREATMENT:

Key words: onsite storage;

Impact on storage will be as follows:

1) Plants must develop storage capabilities.

2) Volume reduction will be encouraged.

3) Solidification and drying of resins will be encouraged.

4) Segregation and controls on DAW production will need to be enhanced.

SECTION 3.

DISPOSAL CONSTRAINTS

PROCESSING CONSTRAINTS - SORTED BY RECORD NUMBER

Document type	Document No.	Document title	Issuing agency	Doc. date	Rec No.
Federal Regulation	10 CFR 61	Licensing Requirements for Land Disposal of Radioactive Wastes	NRC	Mar 26, 1984	1
Federal Regulation	10 CFR 150	Exemptions and Continued Regulatory Authority in Agreement States and in Off-Shore Waters Under Section 274	NRC	Jul 2, 1984	2
Branch Technical Position		Final Waste Classification and Waste Form Technical Position Papers	NRC	Apr 30, 1983	3
Generic Letter		Low Level Radioactive Waste Disposal (and South Carolina Department of Health and Environmental Control Radioactive Materials License for the Barnwell Disposal Facility)	NRC	Jan 29, 1980	4
Generic Letter	84-12	Compliance with 10 CFR 61 and Implementation of the Radiological Effluent Technical Specifications (RETS) and Attendant Process Control Program (PCP)	NRC	Apr 30, 1984	5
IE Information Notice	80-24	Low-Level Radioactive Waste Burial Criteria	NRC	May 30, 1980	6
IE Information Notice	83-05	Obtaining Approval for Disposing of Very Low-Level Radioactive Waste - 10 CFR 20.302	NRC	Feb 24, 1983	7
License	Docket No. 27-48	Special Nuclear Materials License: U.S. Ecology, Inc. Amendment (Hanford)	NRC		8
Docket	PRM-20-15	Edison Electric Institute and Utility Nuclear Waste Management Group Filing of Petition for Rulemaking	NRC	Sep 19, 1984	9
Act of Congress (Public Law)	96-573. Stat. 3347	Low Level Waste Policy Act	Congress	Dec 22, 1980	10
Bill (Draft)	H.R.1083 (99th)	To amend the Low-Level Radioactive Waste Policy Act to improve procedures for the implementation of Compacts providing for the establishment and operation of regional disposal facilities for low-level radioactive waste, and for other purposes	Congress	Feb 7, 1985	11
Bill	H.R. 1046 (99th)	To grant the consent of the Congress to the Central Interstate Low-Level Radioactive Waste Compact	Congress	Feb 7, 1985	12
Bill	S.802 (99th)	To grant the consent of the Congress to the Central Midwest Interstate Low-Level Radioactive Waste Compact	Congress	Mar 23 1985	13
Bill	S.899 (99th)	Granting the Consent of Congress to Midwest Interstate Compact on Low-Level Radioactive Waste Management	Congress	Apr 4, 1985	14
Bill	H.R. 862 (99th) & S.356 (99th)	Granting the Consent of Congress to the Northwest Interstate Compact on Low-Level Radioactive Waste Management	Congress	Jan 31, 1985	15

PROCESSING CONSTRAINTS - SORTED BY RECORD NUMBER

Document type	Document No.	Document title	Issuing agency	Doc. date	Rec No.
Bill	S.442 (99th)	To grant the consent of the Congress to the Rocky Mountain Low-Level Radioactive Waste Compact	Congress	Feb 7, 1985	16
Bill	H.R.1267 (99th) & S.44 (99th)	To grant the consent of the Congress to the Southeast Interstate Low-Level Radioactive Waste Management Compact	Congress	Feb 26, 1985	17
Compact Summary	SL-CS01	Western Compact Summary	Sargent & Lundy	Aug 9, 1985	18
Compact Summary	SL-CS02	Dakotas Compact Summary	Sargent & Lundy	Aug 9, 1985	19
Compact Summary	SL-CS03	Appalachian Compact Summary	Sargent & Lundy	Aug 9, 1985	20
Compact Summary	SL-CS04	Northeast Compact Survey	Sargent & Lundy	Aug 9, 1985	21
Texas Statute	Art. 4590f-1	Low Level Waste Disposal Authority Act	Texas State Legislat.		22
License	097 Amendment 41	South Carolina Dept. of Health and Environment Control Radioactive Materials License for Chem-Nuclear Systems Barnwell Waste Management Facility	South Carolina Dept. of Health & Environ. Control		23
License	13-11-0043 -02, NRC-04 -03766-01	Nevada State Board of Health Radioactive Material License and Amendments 1 through 7 (Beatty)	Nevada State Bd. of Health	Oct 21, 1983	24
License	WN-I-019-2	Radioactive Materials License to U.S. Ecology, Inc. (Hanford License)	State Dept. of Social & Health Services	Dec 23, 1983	25
Disposal Criteria	S20-AD-010 Rev. B	Barnwell Waste Management Facility Site Disposal Criteria	Chem-Nuclear Systems, Inc.	Nov 30, 1982	26
Rate Schedule		U.S. Ecology Nevada Nuclear Center Schedule for Charges Radioactive Waste	U.S. Ecology	Jan 16, 1984	27
Rate Schedule		U.S. Ecology Washington Nuclear Center Schedule of Charges, Radioactive Wastes	U.S. Ecology	Dec 10, 1984	28
Rate Schedule		Barnwell Low-Level Radioactive Waste Disposal Facility Rate Schedule	Chem-Nuclear Systems, Inc.	Jan 1, 1985	29

RECORD No. : 1

DOCUMENT TYPE : Federal Regulation

DOCUMENT NUMBER or CITATION: 10 CFR 61

DOCUMENT DATE : March 26, 1984

DOCUMENT TITLE : Licensing Requirements for Land Disposal of Radioactive Wastes

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Disposal TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): P S

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

Contains procedural and performance objectives for both site and waste for any method of land disposal. Also contains specific technical requirements for near-surface disposal (less than 30 meters).

Establishes a waste classification system in which wastes are classified by activity concentration into Class A, B or C. Specific activity concentration limits are given by radionuclide for each Class.

Gives minimum waste characteristics in the form of stability requirements for the waste form or package depending on waste class.

Also requires each package to be labeled Class A, B, or C.

- See Branch Technical Positions (D-026.)

RECORD No. : 1

IMPACT ON TREATMENT:

- Classification requires utilities to sample their waste streams in order to determine radionuclide inventory. Equipment must have sampling provisions.

- Stability requirements for Class B and C wastes must either be met by solidification or specially designed packages.

- Packages must be labeled with Class A, B, or C. Process design must allow for labeling.

- Other provisions of Part 61 apply to licensing and operation of the disposal site and as such have no direct impact on utilities other than to raise the cost of disposal.

- Volume reduced wastes may fall under stricter waste form stability requirements because of the concentrative effect of VR.

- It may be desirable to blend wastes which are at the lower end of a classification with less radioactive wastes in order to reduce stability requirements.

- Because of the difficulty of achieving structural stability when solidifying ion exchange resins it may be desirable to design the package for stability (i.e., dewater in a HIC).

- Wastes which are stored must be in an acceptable form for disposal at the time of shipment, not when they are produced. Therefore, the choice of treatment type will depend on if the waste will be shipped immediately or stored in an interim storage facility for up to 5 years as it will need to be stable in either case.

RECORD No. : 2

DOCUMENT TYPE : Federal Regulation

DOCUMENT NUMBER or CITATION: 10 CFR 150

DOCUMENT DATE : July 2, 1984

DOCUMENT TITLE : Exemptions and Continued Regulatory Authority in Agreement States and in Off-Shore Waters Under Section 274

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Disposal TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

The document provides a definition of the activities exempt from NRC jurisdiction within agreement states. These exempt activities are regulated by state agencies. In general, all activities which do not involve sufficient material to obtain a critical mass are state regulated. These include most medical, private research and LLRW disposal activities. All fuel processing and activities onsite of nuclear power reactor facilities are under NRC jurisdiction. Onsite storage and processing of LLRW at reactor facilities are regulated by the NRC.

IMPACT ON TREATMENT:

Key words: agreement state, jurisdiction, onsite storage

Impact on actual processing is expected to be minimal for two reasons: NRC maintains jurisdiction over most power reactor related activities so that 10 CFR regulations apply. Secondly, most agreement state regulations either adopt by reference or closely modeled 10 CFR regulations into the state codes. The most significant impact may be in the LLRW disposal regulations which could require more stringent packaging or waste form criteria.

RECORD No. : 3

DOCUMENT TYPE : Branch Technical Position

DOCUMENT NUMBER or CITATION:

DOCUMENT DATE : April 30, 1983

DOCUMENT TITLE : Final Waste Classification and Waste Form Technical Position Papers

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Disposal TREATMENT TYPE: Solidifi

SECONDARY LLRW PHASES (P, T, S, or D): P S

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

The document contains two separate but interrelated technical positions.

The first of these is the Branch Technical Position on Waste Classification. Per 10 CFR 20.311, transfer of radioactive wastes for disposal requires that wastes be identified as Class A, B, or C, per Tables 1 and 2 of 10 CFR 61.55. The technical position provides general procedures which may be used to determine radionuclide concentrations for waste classifications. Radionuclide content may be determined by utilizing: materials accountability, classification by source, gross radioactivity measurement, or direct measurement of individual nuclides.

- Radionuclide concentrations should be verified by sampling.

- Concentration volumes should be based on the waste volume not the container volume.

- Determination of which nuclides to include on the manifests per 10 CFR 20.311 is based on the guidance of this paper, generally if concentrated at greater than 7 microcuries/ cubic centimeters it should be included.

The second paper is the Branch Technical Position on Waste Form. The document provides guidance on waste form testing methods to verify compliance with 10 CFR 61 waste stability criteria. It impacts the

RECORD No. : 3

areas of waste form stability, HIC design, filter cartridge packaging, and resin degradation by radiation. The regulatory position is as follows.

1) Segregated solidified Class A wastes must be free standing monoliths and have less than 0.5% free liquid, wastes not segregated from B and C wastes must meet B and C Type criteria.

2) Class B and C wastes should be monitored by a Process Control Program

   - Be capable of 50 PSI compressive strength.

   - Maintain stability after 10**8 Rad exposure or maximum expected , if greater.

   - Resistant to biodegradation using ASTM G21 tests.

   - Leach testing for 90 days should yield adequate results for ANS 16.1 tests.

   - Imersion testing must be performed with adequate (50 PSI) compression testing following.

   - Thermal cycling followed by 50 PSI compression tests.

3) Ion exchange resin stabilities - loadings should produce less than 10**8 Rads accumulated dose (10 Ci/Ft**3 of Cs-137 and Sr-90).

4) HICs must maintain structural stability based on:

   - Minimum lifetime of 300 years

   - Free liquid limitations to less than 1% by volume

   - Impact drop and loading testing

   - Thermal cycling

   - U.V. and gamma radiation

   - Biodegradation

5) Filter cartridges may be packaged in HICs or solidified in waste monoliths.

RECORD No. : 3

IMPACT ON TREATMENT:

Key words: manifests, 10 CFR 61.55, waste classification, nuclide concentration, sampling, free standing liquid, structural integrity, HICs, solidification

Impact on processing is significant. The two documents provide instruction regarding the radiological, chemical, and physical characteristics to which the final waste form must conform. Processing systems must be operated and designed to provide a product which conforms to these standards and for which the appropriate sampling and testing has been conducted to verify conformance.

RECORD No. : 4

DOCUMENT TYPE : Generic Letter

DOCUMENT NUMBER or CITATION:

DOCUMENT DATE : January 29, 1980

DOCUMENT TITLE : Low Level Radioactive Waste Disposal (and South Carolina Department of Health and Environmental Control Radioactive Materials License for the Barnwell Disposal Facility)

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Disposal TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): P

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

The constraint addresses certain violations of the burial site licensing criterion.

1) Free standing liquid criterion for disposal at the site must be met. Effects of transporation, i.e., vibration, freezing and thawing may increase the amount of free standing water at the burial site and therefore must be considered before shipping.

2) As of 1-1-81 no waste packages shall contain more than 0.5% or one gallon of non-corrosive free liquid in the container volume (which ever is less).

3) Spent resins and filter media with rad levels above lmCi/cc from nuclides whose half lives are greater than 5 years must be stabilized by solidification or placed in HIC's.

RECORD No. : 4

IMPACT ON TREATMENT:

Key words: free standing liquid, waste form, resins, Barnwell

Impact on processing will be as follows:

1) Resins and filter media will have to be stabilized by solidification or disposed of in HIC's with water absorption media.

2) Free standing liquids and corrosive liquids must be limited to "trace quantities". This is a problem for UF solidification and may be a problem for other similar condensation polymer type solidification agents.

3) It may prove favorable to dry or incinerate resins and filter media.

RECORD No. : 5

DOCUMENT TYPE : Generic Letter

DOCUMENT NUMBER or CITATION: 84-12

DOCUMENT DATE : April 30, 1984

DOCUMENT TITLE : Compliance with 10 CFR 61 and Implemetation of the Radiological Effluent Technical Specifications (RETS) and Attendant Process Control Program (PCP)

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Disposal TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): P

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

The letter indicates that efforts must be made to incorporate 10 CFR 61 and 10 CFR 20 revisions into the RETS and PCP programs by each reactor licensee. Without action towards compliance, access to disposal facilities may be interrupted.

IMPACT ON TREATMENT:

Key Words: PCP, RETS

The impact on processing is redundant in that proper applications of 10 CFR 20.311 and 10 CFR 61 incorporate the effluent specification and process control program restrictions. The action to be taken is primarily a matter of documentation that the regulations are being followed. Failure to comply may significantly impact processing by closing access to disposal facilities.

RECORD No. : 6

DOCUMENT TYPE : IE Information Notice

DOCUMENT NUMBER or CITATION: 80-24

DOCUMENT DATE : May 30, 1980

DOCUMENT TITLE : Low-Level Radioactive Waste Burial Criteria

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Disposal TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): P

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

This document is not current and contains conflicts with the current burial site criteria. It is included only for historical value.

The notice serves as an updated revision of Enclosure 1 of IE Notice 79-21 (File Location T-004.) It provides a summary of the LLRW burial criteria for the three current burial sites. Most notable restrictions are:

1) Dewatered resins permitted only at Hanford.

2) Liquid scintillation fluids not permitted at Barnwell.

3) Liquids in absorbent permitted only at Hanford.

4) Discrete Ra Sources are prohibited at Barnwell and restricted to under 1 Ci at Beatty.

5) Free standing liquids are not permitted at Beatty, and only 1% by volume is allowed at the other sites.

For other restrictions, see the document.

RECORD No. : 6

IMPACT ON TREATMENT:

Key words: dewatered resins, free standing liquids, liners, solidification, oil

The general impact is to encourage solidification of all forms of waste. More specifically, the costs of processing, transportation and disposal should be compared against the burial criteria.

RECORD No. : 7

DOCUMENT TYPE : IE Information Notice

DOCUMENT NUMBER or CITATION: 83-05

DOCUMENT DATE : February 24, 1983

DOCUMENT TITLE : Obtaining Approval for Disposing of Very Low-Level Radioactive Waste - 10 CFR 20.302

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Disposal TREATMENT TYPE: DAW

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

Describes the provisions of 10 CFR 20.302 for permit application for disposal by other than licensed shallow land burial of large quantities of materials contaminated with very low levels of radioactivity. Examples: contaminated soil, oil, tools or equipment. NRC encouraged permit submittals for these wastes and promised expeditious consideration.

No actual de minimus levels are mentioned, but review of offsite and occupational dose estimates is indicated as criteria for permit approval.

IMPACT ON TREATMENT:

Allows for onsite or other alternative disposal of very low level radwaste. Could be used to exempt treatment as DAW of contaminated soil. Also, large equipment (such as heat exchangers, etc.) could be disposed onsite or by other alternative rather than at licensed burial site.

RECORD No. : 8

DOCUMENT TYPE : License

DOCUMENT NUMBER or CITATION: Docket No. 27-48

DOCUMENT DATE :

DOCUMENT TITLE : Special Nuclear Materials License: U.S. Ecology, Inc. Amendment (Hanford)

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Disposal TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): T S

COMPACT REGION: Northwest STATE: Washington

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CONSTRAINT DESCRIPTION:

The document licenses disposal activities for "Special Nuclear Materials" containing small amounts of fissile isotopes U-235, U-233, and Pu, at the Hanford facility. Requirements impacting waste producers include:

1) No package shall contain any combination of U-235, U-233 or Plutonium such grams U-235/100 grams U-233/60 + grams Pu/60 is greater than 1.

2) No package shall contain more than 15 grams/cubic foot of U-235, U-233, or Pu.

3) 10 CFR 61.55 restrictions apply for all nuclides.

4) No accumulation of packages shall contain more than 500 grams of U-235, U-233 and Pu.

5) Absorbents for liquids are prohibited unless specifically approved by the NRC for the particular application.

RECORD No. : 8

IMPACT ON TREATMENT:

Key words: special nuclear materials, absorbents, resins, chedating agents

The impact on LLRW processing is expected to be minimal since LLRW system at power facilities do not handle fissile materials.

RECORD No. : 9

DOCUMENT TYPE : Docket

DOCUMENT NUMBER or CITATION: PRM-20-15

DOCUMENT DATE : September 19, 1984

DOCUMENT TITLE : Edison Electric Institute and Utility Nuclear Waste Management Group Filing of Petition for Rulemaking

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Disposal TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): P

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

The document is a petition by the Edison Electric Institute to revise 10 CFR 20 to establish de minimis levels for contaminated oils.

IMPACT ON TREATMENT:

Key words: contaminated oil, deminimis levels

Impact on processing is minimal for two reasons:

1) Currently the document is only issued for comment. No changes in the regulations or instructions that may influence operations or design have been incorporated.

2) Contaminated oil is generally not a major factor in the operation of a radwaste system so long as oils do not contaminate the filter or demineralizer beds.

RECORD No. : 10

DOCUMENT TYPE : Act of Congress (Public Law)

DOCUMENT NUMBER or CITATION: 96-573, Stat. 3347

DOCUMENT DATE : December 22, 1980

DOCUMENT TITLE : Low Level Waste Policy Act

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : Congress

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PRINCPAL LLRW PHASE: Disposal TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): P S

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

The document establishes state responsibility for assuring disposal capabilities for low level radioactive waste generated within the state. Provisions of the act include:

1) Establishment of Compact Regions which must be approved by Congress and may be revoked by Congress every 5 years.

2) Compacts may restrict disposal facility use to wastes generated within the compact after 1986.

3) Defense generated wastes and high level wastes are excluded from state responsibility.

(NOTE: See D-003, H.R.1083 Amendment)

RECORD No. : 10

IMPACT ON TREATMENT:

Key words: compacts, state responsibility, exclusion
Direct regulatory impact is minimal; however, many of issues may be opened as states develop the compact disposal facility criteria. Most notable effects include:

1) Encouraged V.R. as current disposal site allocations are reduced or cut off.

2) Encouraged development of interim storage and associated waste form stability improvements.

3) Increased disposal costs to pay for new disposal facilities.

RECORD No. : 11

DOCUMENT TYPE : Bill (Draft)

DOCUMENT NUMBER or CITATION: H.R.1083 (99th)

DOCUMENT DATE : February 7, 1985

DOCUMENT TITLE : To amend the Low-Level Radioactive Waste Policy Act to improve procedures for the implementation of compacts providing for the establishment and operation of regional disposal facilities for low-level radioactive waste, and for other purposes.

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : Congress

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PRINCPAL LLRW PHASE: Disposal TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): P

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

Since this document is still in draft form, its details are subject to change. However, the law should be enacted by the end of 1985. The final law may invalidate this description and should be referred to for details.

The document amends the low level waste policy act of 1980 which intitally mandated formulation of disposal compacts. Notable changes include:

1) an expanded set of definitions

2) a more detailed definition of the wastes for which the states are responsible. These are those nuclides specified in 10 CFR 61.55 Tables 1 and in concentrations no greater than those for class C wastes per 10 CFR 61.

   - States may but are not required to dispose of wastes generated by federal research or defense activities or outside the compact.

3) Existing or newly completed disposal sites as of 1985 shall negotiate allocations with compacts which have not yet developed facilities for disposal of waste

RECORD No. : 11

through January 1, 1993. Such disposal at the Barnwell and Hanford facilities may be limited to 60% of the 1983 out of compact level. Beatty out of compact disposal may be limited to 150,000 cubic feet.

- Surcharges may be added to out of compact wastes.

4) NRC and agreement state regulators shall assure financial stability of the construction, operations, closure and long term maintenance of the sites.

IMPACT ON TREATMENT:

Key words: costs, surcharges, allocations

The impact on treatment is that the states are given more time to develop their facilities for disposal and storage; however, this "Breathing space" is not unlimited and there is strong financial incentive to eliminate dependance on the existing sites quickly. Surcharges and volume "cap" encourage volume reduction.

RECORD No. : 12

DOCUMENT TYPE : Bill

DOCUMENT NUMBER or CITATION: H.R.1046 (99th)

DOCUMENT DATE : February 7, 1985

DOCUMENT TITLE : To grant the consent of the Congress to the Central Interstate Low-Level Radioactive Waste Compact

GOVERNMENTAL LEVEL : Regional

ISSUING AGENCY : Congress

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PRINCPAL LLRW PHASE: Disposal TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Central STATE:

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CONSTRAINT DESCRIPTION:

The bill grants the consent of the House of Representatives to the formation of the Central Low-Level Radioactive Waste Compact consisting of Arkansas, Iowa, Kansas, Louisiana, Minnesota, Missouri, Nebraska, North Dakota, and Oklahoma. In addition to regulations for formation, acceptance on dissolution of the compact, the bill gives provisions for:

1) Host states to license and regulate any regional facility

2) Users to be charged for services by the operators and the host state.

3) Unless otherwise authorized by the compact commission, it is prohibited to:

   a) Dispose of waste generated outside the compact at the regional facility.

   b) Export wastes generated within the region.

   c) Transport any wastes except from the generator to the regional facility.

RECORD No. : 12

IMPACT ON TREATMENT:

Key words: costs, surcharges, licenses

Direct impact on processing is expected to be minimal unless the burial sites and state develop criteria which are more stringent than those currently used by the burial sites. Costs are expected to increase and may give incentive to volume reduction and source reduction.

RECORD No. : 13

DOCUMENT TYPE : Bill

DOCUMENT NUMBER or CITATION: S.802 (99th)

DOCUMENT DATE : March 23, 1985

DOCUMENT TITLE : To grant the consent of the Congress to the Central Midwest Interstate Low-Level Radioactive Waste Compact

GOVERNMENTAL LEVEL : Regional

ISSUING AGENCY : Congress

PRINCPAL LLRW PHASE: Disposal TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Central Midwest STATE:

CONSTRAINT DESCRIPTION:

The document provides Senate consent to the establishment of the Central Midwest Compact consisting of Illinois and Kentucky. The compact regulations include:

1) Goal to limit the number of facilities

2) Promotion of volume and source reduction

3) Prohibit shallow land burial and deep well disposal, encourage above ground facilities

4) Surcharges levied by host states on a volume and waste nature basis to pay for commission, regulation, and operation expenses

5) Import and export of wastes into and from the region are prohibited unless specifically approved by the commission.

RECORD No. : 13

IMPACT ON TREATMENT:

Key words: costs, volume surcharges, burial, exclusion of wastes

Direct impact on processing due to this document is minimal except that volumetric costs encourage volume and source reduction. However, prohibition of the elimination of shallow land burial opens the possibility of significant changes in waste form and packaging restrictions which will not be determined until new facility concepts and criteria are developed.

RECORD No. : 14

DOCUMENT TYPE : Bill

DOCUMENT NUMBER or CITATION: S.899 (99th)

DOCUMENT DATE : April 4, 1985

DOCUMENT TITLE : Granting the Consent of Congress to the Midwest Interstate Compact on Low-Level Radioactive Waste Management

GOVERNMENTAL LEVEL : Regional

ISSUING AGENCY : Congress

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PRINCPAL LLRW PHASE: Disposal TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Midwest STATE:

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CONSTRAINT DESCRIPTION:

The document provides for U.S. Senate approval of midwest compact. The compact consists of Iowa, Indiana, Michigan, Minnesota, Missouri, Ohio and Wisconsin. The document establishes rules for:

1) Acceptance into and expulsion from the compact.

2) Establishment of compact sites and administration commission.

3) Accessibility of site to member states.

4) Allows for commission approval acceptance of out of compact wastes

5) Allows for commission approved disposal of wastes outside of company.

6) Fee system may include incentives for source reduction.

7) Site closure under normal and emergency circumstances.

8) Allowing for post closure maintenance.

RECORD No. : 14

IMPACT ON TREATMENT:

Key words: costs

Impact on processing will be as follows:

1) Fees may be structured to encourage volume reduction and source reduction based on volume surcharges.

RECORD No. : 15

DOCUMENT TYPE : Bill

DOCUMENT NUMBER or CITATION: H.R.862 (99th) & S.356 (99th)

DOCUMENT DATE : January 31, 1985

DOCUMENT TITLE : Granting the consent of Congress to the Northwest Interstate Compact on Low-Level Radioactive Waste Management

GOVERNMENTAL LEVEL : Regional

ISSUING AGENCY : Congress

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PRINCPAL LLRW PHASE: Disposal TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Northwest STATE:

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CONSTRAINT DESCRIPTION:

The documents provide Congress consent for the establishment of the Northwest Compact consisting of Alaska, Hawaii, Idaho, Montana, Oregon, Utah, Washington, and Wyoming. They are identical. The document provides for:

1) State regulation of packaging and transportation of wastes including spot inspection and inventory maintenance. States may collect fees to cover such costs.

2) Exclusion of wastes generated outside the compact unless specially authorized by the Oversite Committee.

3) State may establish fee schedules for facilities in their history.

4) Establishment of a coordinating Oversite Committee.

RECORD No. : 15

IMPACT ON TREATMENT:

Key words: costs, exclusion of wastes, spot checks

Direct impact on processing will be mimimal unless states adopt more stringent regulations on burial and packaging than are currently used.

The additonal fees may encourage volume reduction and source reduction if based on volume units.

RECORD No. : 16

DOCUMENT TYPE : Bill

DOCUMENT NUMBER or CITATION: S.442 (99th)

DOCUMENT DATE : February 7, 1985

DOCUMENT TITLE : To grant the consent of the Congress to the Rocky Mountain Low-Level Radioactive Waste Compact.

GOVERNMENTAL LEVEL : Regional

ISSUING AGENCY : Congress

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PRINCPAL LLRW PHASE: Disposal TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Rocky Mountain STATE:

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CONSTRAINT DESCRIPTION:

The document gives congressional consent to the formation of the Rocky Mountain Compact consisting of Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming. Provisions include:

1) Closure of Beatty site and establishment of new site within six years.

2) Chosing a host state for a facility. It is the responsibility of the host state to expedite site development.

3) Requirements that each state shall develop regulation and inspection procedures for all wastes generated in their state. The regulations will assure compliance with transportation and packaging criteria.

4) Both the oversite board and the disposal facility may charge fees based on "per unit of waste" to cover inspection operation and closure.

5) Compact inventory program will be established.

6) Waste generated in the compact must be disposed of at the Compact's disposal site unless authorized by the Board to to export or dispose at the generator's facility.

7) Import of waste requires Board and State approval.

RECORD No. : 16

IMPACT ON TREATMENT:

Key words: costs, surcharges

Direct impact on processing will be minimal unless burial criteria are developed which are stricter than current criteria used at Beatty. The additional costs and surcharges may encourage source reduction and volume reduction.

NOTE: Closure of the Beatty Disposal facility may be delayed beyond six years by the Amendment to the Low Level Radioactive Waste Management Act H.R.1083 and difficulty in development of a new site.

RECORD No. : 17

DOCUMENT TYPE : Bill

DOCUMENT NUMBER or CITATION: H.R.1267 (99th) & S.44 (99th)

DOCUMENT DATE : February 26, 1985

DOCUMENT TITLE : To grant the consent of the Congress to the Southeast Interstate Low-Level Radioactive Waste Management Compact

GOVERNMENTAL LEVEL : Regional

ISSUING AGENCY : Congress

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PRINCPAL LLRW PHASE: Disposal TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Southeast STATE:

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CONSTRAINT DESCRIPTION:

The documents provide U.S. Congress approval for the Southeast Compact. The compact consists of Alabama, Florida, Georgia, Mississippi, North Carolina, South Carolina, Tennessee, and Virginia. The Documents establishe regulations regarding:

1) establishment of an oversite commission and its operation.

2) establishment of a new disposal site to replace barnwell which will close December 1992. (Commission will identify host states. The states must pursue site development.)

3) charges based on volumes of waste to pay for administrative costs and commission budget.

4) site closure and long term maintenance.

5) allows commission power to restrict waste volumes accepted from outside the compact and prohibit exportation of wastes for treatment storage.

6) allows state to limit or terminate access to disposal site if the compact legislation.

RECORD No. : 17

IMPACT ON TREATMENT:

Key Words: costs

Processing will be impacted in the following ways:

1) Encouraged volume reduction via charges on volumes buried.

RECORD No. : 18

DOCUMENT TYPE : Compact Summary

DOCUMENT NUMBER or CITATION: SL-CS01

DOCUMENT DATE : August 9, 1985

DOCUMENT TITLE : Western Compact Summary

GOVERNMENTAL LEVEL : Regional

ISSUING AGENCY : Sargent & Lundy

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PRINCPAL LLRW PHASE: Disposal TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): T

COMPACT REGION: Western STATE:

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CONSTRAINT DESCRIPTION:

The Western Compact has been ratified by Arizona and is stalled in the California legislature. Not yet submitted to Congress for consent, therefore has no legal significance. Some general provisions of the compact as passed by Arizona are:

- Compact board can levy surcharge at disposal facility.
- California will host first disposal facility because of current waste generation rate.
- Inspect for and enforce federal packaging and transporation requirements
- Import/export limitations.

IMPACT ON TREATMENT:

None yet because of tentative legal status. Will impact cost of disposal and increase inspection and reporting requirements.

RECORD No. : 19

DOCUMENT TYPE : Compact Summary

DOCUMENT NUMBER or CITATION: SL-CS02

DOCUMENT DATE : August 9, 1985

DOCUMENT TITLE : Dakotas Compact Summary

GOVERNMENTAL LEVEL : Regional

ISSUING AGENCY : Sargent & Lundy

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PRINCPAL LLRW PHASE: Disposal TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): T

COMPACT REGION: Dakotas STATE:

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CONSTRAINT DESCRIPTION:

Ratified by both South Dakota and North Dakota legislatures, however, final ratification is pending, awaiting a general referendum in South Dakota. Therefore, has no legal significance. Some general provisions of the compact as passed by both state legislatures are:

- Requires volume reduction by each party state.
- Requires future access to facilities in a region that uses the Dakotas' disposal facility.
- Authorizes surcharge on generators based on volume and characteristics.
- Authorizes periodic unannounced inspections of generator's facilities to enforce transport and packaging requirements.
- Import/export limitations.

RECORD No. : 19

IMPACT ON TREATMENT:

None yet because of tentative legal status.

- Since there are no nuclear power plants in North or South Dakota, volume reduction mandate will have no impact.

- Surcharge will affect cost of disposal for utilities using the Dakotas' regional facility as an out of region facility.

RECORD No. : 20

DOCUMENT TYPE : Compact Summary

DOCUMENT NUMBER or CITATION: SL-CS03

DOCUMENT DATE : August 9, 1985

DOCUMENT TITLE : Appalachian Compact Summary

GOVERNMENTAL LEVEL : Regional

ISSUING AGENCY : Sargent & Lundy

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PRINCPAL LLRW PHASE: Disposal TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): T

COMPACT REGION: Appalacian STATE:

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CONSTRAINT DESCRIPTION:

Ratified by Pennsylvania and West Virginia. However, Pennsylvania's version differs from West Virginia's and will require re-ratification. Maryland and Deleware are eligible, but adjourned until next year. No legal significance. Some general provisions are:

- Encourages volume reduction.
- Pennsylvania and any party state generating 25% of Pennsylvania's volume is(are) the initial host state(s).
- Develop and enforce transport, packaging and volume reduction requirements.
- No language regarding fees or surcharges.
- Import/export limitations.

IMPACT ON TREATMENT:

No impact yet because of tentative legal status.

- Possibility of volume reduction requirement will impact utility waste.

RECORD No. : 21

DOCUMENT TYPE : Compact Summary

DOCUMENT NUMBER or CITATION: SL-CS04

DOCUMENT DATE : August 9, 1985

DOCUMENT TITLE : Northeast Compact Survey

GOVERNMENTAL LEVEL : Regional

ISSUING AGENCY : Sargent & Lundy

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PRINCPAL LLRW PHASE: Disposal TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Northeast STATE:

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CONSTRAINT DESCRIPTION:

Eligible states are Vermont, New Hampshire, Maine, Connecticut, Rhode Island, New Jersey, New York, Maryland, Deleware, and Massachusetts. Only ratified by CT, NJ, MD and DE. No legal significance yet as it hasn't been introduced to Congress. Some general provisions are:

- Encourages volume reduction
- Import/export limitations
- Authorizes surcharge at regional facility.

IMPACT ON TREATMENT:

None yet because of tentative legal status. Will impact cost and availability of disposal.

RECORD No. : 22

DOCUMENT TYPE : Texas Statute

DOCUMENT NUMBER or CITATION: Art. 4590f-1

DOCUMENT DATE :

DOCUMENT TITLE : Low Level Waste Disposal Authority Act

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Texas State Legislature

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PRINCPAL LLRW PHASE: Disposal TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Texas STATE: Texas

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CONSTRAINT DESCRIPTION:

The document establishes the procedures for creation, administration and final decommissioning of a LLRW disposal facility for the state of Texas. In addition, it provides basic site requirements including:

1) 72 hour prenotification to site before transportation of LLRW.

2) Inspection of wastes before transportation.

3) Only wastes generated in Texas are acceptable.

4) Disposal fees charged on a per volume basis as well as "Relative hazard" including curie content and waste form.

IMPACT ON TREATMENT:

Key words: costs, licensing, prenotification, inspection, exclusion of wastes

The burial costs based on volumes will encourage source and volume reduction. Charges based on "Relative hazard" will encourage drying and solidification of resins.

RECORD No. : 23

DOCUMENT TYPE : License

DOCUMENT NUMBER or CITATION: 097 Amendment 41

DOCUMENT DATE :

DOCUMENT TITLE : South Carolina Dept. of Health and Environmental Control Radioactive Materials License for Chem-Nuclear Systems Barnwell Waste Management Facility

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : South Carolina Dept. of Health and Environmental Control

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PRINCPAL LLRW PHASE: Disposal TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Southeast STATE:

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CONSTRAINT DESCRIPTION:

The document is the state issued license for LLRW disposal at the Barnwell facility. General criteria which impact LLRW processing include:

1) No liquid wastes may be accepted.

2) No detectable (0.5% by volume) free standing noncorrosive liquid in a container of solidified waste. Also allows use of HIC for up to 1% free liquid.

3) Solidification in vinyl ester styrene, cement, or bitumen.

4) No incinerator ash or power which is not solidified in a non-disperable matrix is acceptable.

5) Chelating agents at greater than 8 percent by weight concentration are not acceptable. Less than 8% must be solidified and buried with a ten foot buffer of soil between it and the closest Class B or C container.

6) No oil in any form is acceptable except in trace amounts. (1% or less)

RECORD No. : 23

IMPACT ON TREATMENT:

Key words: free standing liquid, packaging, solidification, chelating agents, oil

Impact on processing is significant. Defines the final form of LLRW for disposal.

RECORD No. : 24

DOCUMENT TYPE : License

DOCUMENT NUMBER or CITATION: 13-11-0043-02, NRC-04-03766-01

DOCUMENT DATE : October 21, 1983

DOCUMENT TITLE : Nevada State Board of Health Radioactive Material License and Amendments 1 through 7 (Beatty)

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Nevada State Board of Health

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PRINCPAL LLRW PHASE: Disposal TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): P T S

COMPACT REGION: Rocky Mountain STATE: Nevada

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CONSTRAINT DESCRIPTION:

The document licenses the Beatty disposal site for LLRW and special nuclear material. Restrictions having impact on power facility wastes generators include:

1) UREA - formaldehyde is not acceptable as a solidification agent.

2) DAW in cardboard or fiber board boxes in unacceptable.

3) Absorbed liquids are unacceptable.

4) Free standing liquid is unacceptable.

5) Gas at more than 1.5 ATM or more than 100 curies/ container is unacceptable.

6) No unsolidified resins are acceptable (Amendment 7, Sheet 3).

7) Waste containing chelating agents must be segregated by 10 feet of soil.

RECORD No. : 24

IMPACT ON TREATMENT:

Key words: DAW, absorbent, chelating agents

The ban on the use of absorbents and requirement that resins be solidified encourages drying and solidification of wastes. The isolation of chelating agents will increase the disposal costs of decontamination agents.

RECORD No. : 25

DOCUMENT TYPE : License

DOCUMENT NUMBER or CITATION: WN-I019-2

DOCUMENT DATE : December 23, 1983

DOCUMENT TITLE : Radioactive Materials License to U.S. Ecology, Inc. (Hanford License)

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : State Department of Social and Health Services

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PRINCPAL LLRW PHASE: Disposal TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): P T S

COMPACT REGION: Norathwest STATE: Washington

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CONSTRAINT DESCRIPTION:

The license governs the operations of the "Richland" Hanford Disposal facility by U.S. Ecology, Inc. Provisions that impact the waste production at reactor facilities include:

1) No transuranic wastes in concentrations above 10 nanocuries/gram.

2) Solidification or absorption required for oils greater than 1% by volume.

3) Solidification of liquids or absorption to less than 0.5% fee liquid by volume.

4) DOW media, cement, envirostone, asphalt and Delaware Custom Material are acceptable solidification agents.

5) Resins and filter media with half lives greater than 5 years and activities above 1 microcurie/cc must be solidified or placed in HICs.

6) Wastes containing chealating agents must be isolated by 10 feet of soil.

RECORD No. : 25

IMPACT ON TREATMENT:

Key words: solidification, oils, liquids, HIC's, chealating agents, costs

The document impacts all areas regarding the final form of the LLRW, transportation, and ultimate disposal. Segregation of chelating agents will increase disposal costs for decontamination agents.

RECORD No. : 26

DOCUMENT TYPE : Disposal Criteria

DOCUMENT NUMBER or CITATION: S20-AD-010 Rev. B

DOCUMENT DATE : November 30, 1982

DOCUMENT TITLE : Barnwell Waste Management Facility Site Disposal Criteria

GOVERNMENTAL LEVEL : Private

ISSUING AGENCY : Chem Nuclear Systems, Inc.

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PRINCPAL LLRW PHASE: Disposal TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Southeast STATE: South Carolina

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CONSTRAINT DESCRIPTION:

The document outlines the policies of the disposal site as they relate to the shipper. They include:

- General scheduling, delivery and manifest requirements
- Volume allocation plan (first come/first serve or monthly allocation)
- Prior notification instructions
- Shipment manifest procedures
- Volume measurement criteria
- Vehicle loading requirements
- Surface contamination restrictions for transportation vehicles and packages
- Driver check in procedures
- Special waste categories
- Equipment storage

RECORD No. : 26

- Unauthorized shipments (outside of Barnwell License)
- Regulation violation.

IMPACT ON TREATMENT:

Key words: allocation, volume

Primary impact is on the details of package preparation and shipping. Volume allocation plan dictates site availability to users.

RECORD No. : 27

DOCUMENT TYPE : Rate Schedule

DOCUMENT NUMBER or CITATION:

DOCUMENT DATE : January 16, 1984

DOCUMENT TITLE : U.S. Ecology Nevada Nuclear Center Schedule of Charges Radioactive Waste

GOVERNMENTAL LEVEL : Private

ISSUING AGENCY : U.S. Ecology

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PRINCPAL LLRW PHASE: Disposal TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): P T

COMPACT REGION: Rocky Mountain STATE: Nevada

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CONSTRAINT DESCRIPTION:

The Beatty disposal site charges are provided on the document. They are based on surface dose rates, volume, container type and container weight. Charges for special services such as decontamination and irregular exposure are also outlined.

IMPACT ON TREATMENT:

Key words: costs, volume surcharges, curie content, weight, chelating agents

Impact on processing is as follows:

1) Volumes surcharges encourage volume reduction.

2) Curie content surcharges may encourage source reduction and waste stream blending.

3) Variations in costs of drums vs. liners should be considered. These include weight charges, cask handling fees, as well as the varied surface dose and volume charges.

4) Restrictions on chelating agents should be considered when decontaminating process systems.

RECORD No. : 28

DOCUMENT TYPE : Rate Schedule

DOCUMENT NUMBER or CITATION:

DOCUMENT DATE : December 10, 1984

DOCUMENT TITLE : U.S. Ecology Washington Nuclear Center Schedule of Charges, Radioactive Wastes

GOVERNMENTAL LEVEL : Private

ISSUING AGENCY : U.S. Ecology

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PRINCPAL LLRW PHASE: Disposal TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): P T

COMPACT REGION: Northwest STATE: Washington

==========

CONSTRAINT DESCRIPTION:

The Hanford disposal site charges are outlined in this document. They include curie content and surface dose rate surcharges, volume charges, weight surcharges, and additional fees for decontamination, irregular personnel exposure and other special services.

IMPACT ON TREATMENT:

Key words: costs, volume, surcharges, curies content, weight, chelating agents

Impact on processing will be as follows:

1) Volume surcharges encourage volume reduction

2) Curie content surcharges may encourage waste stream mixes and source reduction.

3) Variations in costs of liners vs. drums should be considered. These costs include: weight charges, cask surcharges, as well as varied surface dose and volume charges.

RECORD No. : 29

DOCUMENT TYPE : Rate Schedule

DOCUMENT NUMBER or CITATION:

DOCUMENT DATE : January 1, 1985

DOCUMENT TITLE : Barnwell Low-Level Radioactive Waste Disposal Facility Rate Schedule

GOVERNMENTAL LEVEL : Private

ISSUING AGENCY : Chem-Nuclear Systems, Inc.

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PRINCPAL LLRW PHASE: Disposal TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): P T

COMPACT REGION: Southeast STATE: South Carolina

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CONSTRAINT DESCRIPTION:

The Barnwell disposal site charges are outlined in this document. They include volumetric charges, weight and curie content surcharges, and all special service fees.

IMPACT ON TREATMENT:

Key words: costs, weights, curie contents, volume surcharges, chelating agents

Impact on processing will be as follows:

1) Volume based charges encourage volume reduction.

2) Container weight charges encourage the use of drums rather than liners, as do cask handling fees.

3) Curie content charges may encourage waste stream mixing and source reduction.

SECTION 4.

TRANSPORTATION CONSTRAINTS

TRANSPORTATION CONSTRAINTS - SORTED BY RECORD NUMBER

Document type	Document No.	Document title	Issuing agency	Doc. date	Rec No.
Federal Regulation	10 CFR 71	Packaging and Transportation of Radioactive Material	NRC	May 21, 1984	1
Federal Regulation	49 CFR 170-189	Subchapter C - Hazardous Materials Regulations	DOT	May 13, 1985	2
Regulation Summary	(23 CFR 658)	Vehicle Sizes and Weights Manual - Federal	J. J. Keller & Assoc., Inc.	Jul 1, 1984	3
DOT Publication	DOT/RSPA/ MTB-84/22	Guidelines For Selecting Preferred Highway Routes For Highway Route Controlled Quantity Shipments of Radioactive Materials	DOT		4
IE Bulletin	79-19	Packaging of Low-Level Radioactive Waste for Transport and Burial	NRC	Aug 10, 1979	5
IE Circular	78-03	Packaging Greater than Type A Quantities of Low Specific Activity Radioactive Material for Transport	NRC	May 12, 1978	6
IE Information Notice	79-21	Transportation and Commercial Burial of Radioactive Material	NRC	Sep 7, 1979	7
IE Information Notice	80-32 Rev. 1	Clarification of Certain Requirements for Exclusive-Use Shipments of Radioactive Materials, Revision 1	NRC	Feb 12, 1982	8
IE Information Notice	82-47	Transportation of Type A Quantities of Non-Fissile Radioactive Material	NRC	Nov 30, 1982	9
IE Information Notice	83-10	Clarification of Several Aspects Relating to Use of NRC-Certified Transport Packages	NRC	Mar 11, 1983	10
IE Information Notice	84-14	Highlights of Recent Transport Regulation Revision by the DOT and NRC	NRC	Mar 2, 1984	11
IE Information Notice	84-50	Clarification of Scope of Quality Assurance Programs for Transport Packages Pursuant to 10 CFR 50 Appendix B	NRC	Jun 21, 1984	12
IE Information Notice	84-72	Clarification of Conditions For Waste Shipments Subject to Hydrogen Gas Generation	NRC	Sep 10, 1984	13
IE Information Notice	85-46	Clarification of Several Aspects of Removable Radioactive Surface Contamination Limits for Transport Packages	NRC	Jun 10, 1985	14
SECY Paper	83-514	NRC Response to Accidents Occurring During the Transportation of Radioactive Material - A Statement of Policy	NRC	Dec 16, 1983	15
State Transportation Survey	SL-ST19	Alabama State Transportation Survey	Dept. of Public Health, Bur. of Radiol. Health	May 21, 1985	16
State Transportation Survey	SL-ST01	Arizona State Transportation Survey	Ariz. State DOT	Jun 3, 1985	17

TRANSPORTATION CONSTRAINTS - SORTED BY RECORD NUMBER

Document type	Document No.	Document title	Issuing agency	Doc. date	Rec No.
State Transportation Survey	SL-ST20	Arkansas State Transportation Survey	State Bd. of Health, Transp.	May 23, 1985	18
State Transportation Survey	SL-ST02	California State Transportation Survey	Calif. Dept. of Health Services, Dept. of Motor Vehicles	Jun 8, 1985	19
State Transportation Survey	SL-ST21	Colorado State Transportation Survey and Attached Legislation	Colorado Public Utilities Comm.	May 29, 1985	20
State Transportation Survey	SL-ST22	Connecticut State Transportation Survey	Dept. of Transp. Motor Transport	May 28, 1985	21
State Transportation Survey	SL-ST03	Delaware State Transportation Survey	Delaware State Police, Dept. of Traffic	May 31, 1985	22
State Transportation Survey	SL-ST23	Florida State Transportation Survey and Associated Statutes	Florida Dept. of Transp.	May 28, 1985	23
State Transportation Survey	SL-ST04	Georgia State Transportation Survey and Associated Documents	Georgia Dept. of Transp.	Jun 6, 1985	24
State Transportation Survey	SL-ST05	Idaho State Transportation Survey	Idaho Dept. of Health & Welfare, Div. of Environ.	Jun 3, 1985	25
State Transportation Survey	SL-ST06	Illinois State Transportation Survey	Ill DOT Div. of Traffic		26
State Transportation Survey	SL-ST07	Indiana State Transportation Survey	Ind State Police	Jun 6, 1985	27
State Transportation Survey	SL-ST33	Iowa State Transportation Survey	Dept. of Water, Air & Waste Mgt.	Jun 29, 1985	28
State Transportation Survey	SL-ST34	Kansas State Transportation Survey	Dept. of Health & Environ.		29

TRANSPORTATION CONSTRAINTS - SORTED BY RECORD NUMBER

Document type	Document No.	Document title	Issuing agency	Doc. date	Rec No.
State Transportation Survey	SL-ST08	Kentucky State Transportation Survey	Kentucky Trans. Cabinet	Jun 3, 1985	30
State Transportation Survey	SL-ST16	Louisiana State Transportation Survey and Attached Legislation	Dept. of Public Safety	May 28, 1985	31
State Transportation Survey	SL-ST09	Maine State Transportation Survey	Maine State Police & Dept. of Public Safety	Jun 3, 1985	32
State Transportation Survey	SL-ST10	Maryland State Transportation Survey Survey	Maryland Dept. of Health & Mental Hygiene, Waste Mgt. Adm.	Jun 7, 1985	33
State Transportation Survey	SL-ST11	Michigan State Transportation Survey	State Police Motor Car. Enforce. & Public Health Dept.	Jun 3, 1985	34
State Transportation Survey	SL-ST12	Minnesota State Transportation Survey	Minn. DOT Div. of Motor Carr., Dept. of Health	Jun 6, 1985	35
State Transportation Survey	SL-ST13	Mississippi State Transportation Survey	Dept. of Health, Div. of Radiol. Health	Jun 6, 1985 1985	36
State Transportation Survey	SL-ST35	Missouri State Transportation Survey	Dept. of Public Safety, Hwy. Pat.	Jun 26, 1985	37
State Transportation Survey	SL-ST39	Montana State Transportation Survey	Dept. of Justice, Div. of Hwy. Pat.	Jul 3, 1985	38
State Transportation Survey	SL-ST36	Nebraska State Transportation Survey	State Hwy. Patrol	Jun 25, 1985	39
State Transportation Survey	SL-ST44	Nevada State Transportation Survey	Nev. Div. of Hwy. Patrol (Dept. of Motor Veh.)	Jul 3, 1985	40

TRANSPORTATION CONSTRAINTS - SORTED BY RECORD NUMBER

Document type	Document No.	Document title	Issuing agency	Doc. date	Rec No.
State Transportation Survey	SL-ST18	New Hampshire State Transportation Survey	Transp. Auth. of the Dept. of Safety	Jun 28, 1985	41
State Transportation Survey	SL-ST40	New Jersey State Transportation Survey	Bur. of Radia. Prot., Dept. of Env. Prot.	Jul 1, 1985	42
State Transportation Survey	SL-ST47	New Mexico State Transportation Survey and Associated Document	N.M. Bur. of Rad. Prot.	Jul 8, 1985	43
State Transportation Survey	SL-ST43	New York Transportation Survey and Associated Documents	Hwy. Dept. Div. of State Police	Jul 3, 1985	44
State Transportation Survey	SL-ST37	North Carolina State Transportation Survey	Dept. of Transp.	Jul 26, 1985	45
State Transportation Survey	SL-ST38	North Dakota State Transportation Survey and Associated Documents	State Hwy Patrol	Jun 12, 1985	46
State Transportation Survey	SL-ST32	Ohio State Transportation Survey	Dept. of Health, Bur. of Envir. Radiol. Unit	Jun 12, 1985	47
State Transportation Survey	SL-ST30	Oklahoma State Transportation Survey	Dept. of Public Safety, Div. of Hwy Pat.	Jun 27, 1985	48
State Transportation Survey	SL-ST46	Oregon State Transportation Survey and Associated Documents	Oregon Dept. of Energy	Jul 5, 1985	49
State Transportation Survey	SL-ST48	Pennsylvania State Transportation Survey	Pa. Dept. of Transp.	Jun 12, 1985	50
State Transportation Survey	SL-ST14	Rhode Island State Transportation Survey and Associated Documents	Dept. of Health, Div. of Occup. Health & Rad. Safety	Jun 6, 1985	51
State Transportation Survey	SL-ST41	South Carolina State Transportation Survey	Dept. of Health & Environ. Control, Radiol. Health	Jul 1, 1985	52

TRANSPORTATION CONSTRAINTS - SORTED BY RECORD NUMBER

Document type	Document No.	Document title	Issuing agency	Doc. date	Rec No.
State Transportation Survey	SL-ST31	South Dakota State Survey and Associated Statutes and Regulations	State Hwy Patrol	Jun 25, 1985	53
State Transportation Survey	SL-ST29	Tennessee State Transportation Survey and Attached Regulations	Public Service Comm.	Jun 11, 1985	54
State Transportation Survey	SL-ST28	Texas State Transportation Survey	Dept. of Health Bur. of Radia. Control	Jun 25, 1985	55
State Transportation Survey	SL-ST45	Utah State Transportation Survey and Associated Documents	Utah Dept. of Transp.	Jul 3, 1985	56
State Transportation Survey	SL-ST15	Vermont State Transportation Survey	Agency of Transp.	Jun 6, 1985	57
State Transportation Survey	SLST27	Virginia State Transportation Survey	Dept. of State Police & State Bd. of Health Div. of Waste Mgt.	Jun 11, 1985	58
State Transportation Survey	SL-ST42	Washington State Transportation Survey and Associated Documents	State Hwy Patrol, Social & Health Serv. Dept.	Jun 28, 1985	59
State Transportation Survey	SL-ST17	West Virginia State Transportation Survey and Associated Rules and Regulations and Statutes	Public Serv. Comm.	Jun 12, 1985	60
State Transportation Survey	SL-ST25	Wisconsin State Transportation Survey	Wis. State Patrol	May 29, 1985	61
State Transportation Survey	SL-ST26	Wyoming State Transportation Survey and Associated Documents	Public Service Comm., Motor	Jun 26, 1985	62
Rate Schedule	Docket MC-109397	Tri-state Motor Transit Tariffs	Tri-State Motor Transit Co.	Jul 9, 1985	63
Regulation Summary		Vehicle Sizes and Weights Manual. State by State Summary of Uniform Federal Size and Weight Limits	J. J. Keller & Assoc., Inc.	Jul 1, 1985	64
Telecon		Telecon Between C. R. Palmer (S&L) & R. Swift (Chem. Nuclear) regarding Truck Weight Breakdowns	S&L - Chem. Nuclear	Jul 5 1985	65
ENVD Memo		TELECON with Earl Rotenkruger, Specialist of Nuclear and Hazardous Materials Div. of Tri-State Motor Transit Co.	Sargent & Lundy	Apr 25, 1985	66

RECORD No. : 1

DOCUMENT TYPE : Federal Regulation

DOCUMENT NUMBER or CITATION: 10 CFR 71

DOCUMENT DATE : May 21, 1984

DOCUMENT TITLE : Packaging and Transportation of Radioactive Material

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): P S

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

Establishes the requirements for packaging, preparation for shipment and transportation of radioactive materials in excess of a Type A quantity. For LLRW, this includes a greater than Type A quantity of LSA material, a Type B quantity and a highway route control quantity (HRCQ). Type quantities (A, B or HRCQ) are determined using the "A1/A2" system in which each radionuclide is assigned a limiting quantity of curies depending on its hazard in a transportation accident. Type B packages must be designed to withstand hypothetical accident conditions as well as normal conditions of transport. DOT transportation regulations (49 CFR 170-189, see File T-010) are adopted by reference.

IMPACT ON TREATMENT:

- External package radiation limits must be considered when selecting the size of the package to be used.

- Volume reduced wastes may require the more stringent packaging requirements of a Type B quantity as the same volume package will contain a larger quantity of radionuclides.

RECORD No. : 2

DOCUMENT TYPE : Federal Regulation

DOCUMENT NUMBER or CITATION: 49 CFR 170-189

DOCUMENT DATE : May 13, 1985

DOCUMENT TITLE : Subchapter C - Hazardous Materials Regulations

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : DOT

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PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): P S

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

Gives DOT requirements governing the packaging and transportation of hazardous materials by motor vehicle, rail car, aircraft or boat. Packaging and transportation requirements are keyed to the quantity of radionuclides to be placed in the package. Four designations exist. They are: Limited Quantity, Type A Quantity, Type B Quantity, and Highway Route Controlled Quantity. These are determined using the A1-A2 system. With respect to packaging, the design, fabrication, marking, labeling and use requirements are defined. With respect to transportation, requirements for shipping papers, vehicle placarding, vehicle loading, radiation levels, prior notification, and routing are all given.

Package radiation levels, and removable contamination levels are also given. DOT requirements apply to all radioactive materials shipments. In addition to these, NRC requirements (10 CFR 71, see File T-070) apply to shipments of greater than Type A quantities. Special exemptions are given for Low Specific Activity (LSA) materials.

RECORD No. : 2

IMPACT ON TREATMENT:

Impact is extensive as all packages must meet transportation requirements both at time of shipment and after shipment. Storage design must consider package integrity. Some typical processing considerations are:

- waste must be noncorrosive to package
- waste must not over pressurize package
- activity levels must be consistent with package
- package exterior must be relatively free from removable contamination.

RECORD No. : 3

DOCUMENT TYPE : Regulation Summary

DOCUMENT NUMBER or CITATION: (23 CFR 658)

DOCUMENT DATE : July 1, 1984

DOCUMENT TITLE : Vehicle Sizes and Weights Manual - Federal

GOVERNMENTAL LEVEL : Private

ISSUING AGENCY : J. J. Keller and Associates, Inc.

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PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

The document provides:

1) An explanation of the use of the bridge formula.

2) Reservation of trip permit activities for the states.

3) Tabulation of U.S. ports of entry from Mexico and Canada.

4) 23 CFR 658 - Regulations for truck size and weight route designations and length, width and weight limitations.

5) An identification of the routes that comprise the national highway network.

IMPACT ON TREATMENT:

Keywords: overweight, route, permit, bridge formula.

Impact on processing will be minimal. Weight distributions must be considered.

RECORD No. : 4

DOCUMENT TYPE : DOT Publication

DOCUMENT NUMBER or CITATION: DOT/RSPA/MTB-84/22

DOCUMENT DATE :

DOCUMENT TITLE : Guidelines For Selecting Preferred Highway Routes For Highway Route Controlled Quantity Shipments of Radioactive Materials

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : DOT

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PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

The document provides a methodology and discussion of pertinent considerations that may aid in the determination of routing for radioactive shipments. Applies to "Highway Route Controlled Quantity" which replaces former "Large Quantity."

IMPACT ON TREATMENT:

Key words: routing

Impact on processing will be minimal. The guide looks at the potential accumulated doses compared to the other shipping considerations from a radiological perspective. Waste form stability and the nature and concentration of radiation will be influenced by the population levels and accident frequency of the desired routing. However, currently safe routing considerations have less impact on processing than the economics of transportation and disposal.

RECORD No. : 5

DOCUMENT TYPE : IE Bulletin

DOCUMENT NUMBER or CITATION: 79-19

DOCUMENT DATE : August 10, 1979

DOCUMENT TITLE : Packaging of Low-Level Radioactive Waste for Transport and Burial

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): D P

COMPACT REGION: STATE:

CONSTRAINT DESCRIPTION:

Brought about as a result of repeated transportation and burial regulation violations in mid-1979. Threatened exclusion from all three burial sites for violator at any single site. Required specific action items from LLRW producers and a statement of plan of action and schedule to perform these actions. These actions were:

- obtain and maintain a current set of DOT, NRC, State, burial site and contractor packaging and transportation requirements

- designate in writing people responsible for packaging and transportation of LLRW.

- provide management approved procedures for packaging and transportation of LLRW, paying particular attention to chemical and physical form and package integrity

- provide training and periodic retraining in DOT, NRC, burial site requirements and company operating procedures to all personnel involved in transfer, packaging and transport of LLRW. Maintain an auditable record of training dates, attendees and subject material.

- provide periodic training in generation reduction and waste segregation.

RECORD No. : 5

IMPACT ON TREATMENT:

Key words: training, procedures, packaging, waste form

1) Training program for treatment personnel may favor contractors.

2) Documentation required on procedures, training, and availability of current site licenses.

3) Greater effort on controls of chemical and physical form increase costs for solidification.

RECORD No. : 6

DOCUMENT TYPE : IE Circular

DOCUMENT NUMBER or CITATION: 78-03

DOCUMENT DATE : May 12, 1978

DOCUMENT TITLE : Packaging Greater than Type A Quantities of Low Specific Activity Radioactive Material for Transport

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

Due to difference between DOT Regulation 49 CFR 173.392 (revised to 49 CFR 173.425 in 1982) and NRC Regulation 10 CFR 71.12, and inadequate understanding of transportation regulations, shipment of packages containing greater than type A quantities of LSA material has occurred. As clarification, LSA of greater than Type A quantity must meet general license Type A packaging requirements of 10 CFR 71.12. Consequently, an NRC approved Type A package is required for these wastes.

IMPACT ON TREATMENT:

Even though a material is LSA, if the package (drum or liner) contains greater than a Type A quantity, it must be shipped in an NRC approved package (transportation cask). This resulted in what was known as the "3-curie rule," because 3 Ci was the Type A limit for the old Transport Group of Cesium-137. However, Transport Groups have been eliminated by the A1-A2 system.

RECORD No. : 7

DOCUMENT TYPE : IE Information Notice

DOCUMENT NUMBER or CITATION: 79-21

DOCUMENT DATE : September 7, 1979

DOCUMENT TITLE : Transportation and Commercial Burial of Radioactive Material

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): D P

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

NOTE: Enclosure 1 superceded by IE Notice 80-24.

The notice comments on the concern of the Governors of Nevada, South Carolina and Washington regarding violations in shipping requirements that impact the burial of LLRW in their states. It also refers to IE Bulletins 79-19 and 79-20 which address these regulations. Finally it provides a summary of the types and forms of waste that may be buried at each site based on federal, and state restrictions. Attached burial criteria and waste forms restrictions have been revised. Criteria are summarized in File D-012, IE Notice 80-24, or may be found in the site radioactive materials licenses and criteria; D-013, D-015, D-023, and D-024.

NOTE: This issue resulted in LLRW Policy Act of 1980.

RECORD No. : 7

IMPACT ON TREATMENT:

Key words: burial criteria, waste form, IE Bulletin 79-19, IE Bulletin 79-20

Processing must yield a waste form product that meets burial requirements. Failure to comply may result in closure of the burial sites or denial of access to offenders.

Impact on processing is significant in that this issue has led to the formation of the Low Level Waste Policy Act and the required compacts.

RECORD No. : 8

DOCUMENT TYPE : IE Information Notice

DOCUMENT NUMBER or CITATION: 80-32 Revision 1

DOCUMENT DATE : February 12, 1982

DOCUMENT TITLE : Clarification of Certain Requirements for Exclusive-Use Shipments of Radioactive Materials, Revision 1

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

This document provides clarification for what constitutes the "Package", what constitutes a closed transport vehicle, and at what locations radiation measurements should be made to verify compliance with 49 CFR 173, 49 CFR 171, and 10 CFR 71. Note that Revision 1 reverses some of the positions held in the original IE Notice 80-32. The principles of this notice have been incorporated in the current transport regulations. However, it serves to highlight when the shielding is considered part of the package.

IMPACT ON TREATMENT:

Key words: package, vehicle, LSA, Type A quantities, costs

The decision to use a shielded van versus shipping casks for the transportation of drums is based in part on the definition of the "Package." In cases where the shielding is considered part of the "Package" a shielded van cannot meet the Package integrity requirements (drop test). As a result, prior to Revision 1 of IE Notice 80-32, the less economical casks were required to ship Type A quantities where shielding was required to meet the vehicles radiation limits of 49 CFR 173. Now, shielded vans are capable of meeting transportation requirements since the inner drums are considered as the package if they contain a Type A quantify and meet surface radiation limits.

These considerations become important when evaluating the option of packaging waste in drums or in cask liners.

RECORD No. : 9

DOCUMENT TYPE : IE Information Notice

DOCUMENT NUMBER or CITATION: 82-47

DOCUMENT DATE : November 30, 1982

DOCUMENT TITLE : Transportation of Type A Quantities of Non-Fissile Radioactive Material

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE: Packaging

SECONDARY LLRW PHASES (P, T, S, or D): P

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

Several violations of DOT Regulations 49 CFR have resulted from the failure of many infrequent shippers to familiarize themselves with the regulations. These waste producers predominately handle Type A quantities of radioactive material. IE Notice 82-47 provides a brief synopsis of: source design classification, packaging types, labeling, shipping papers, vehicle placarding, security, all of which apply to Type A quantity.

In particular:

1) For special form sources below 20 Ci: use DOT Spec 7A or Spec. 55. (NOTE: Spec. 55 is being phased out.)

2) For normal form Type A wastes, the package activity may not exceed the Type A limits and should use Spec. 7A packaging.

IMPACT ON TREATMENT:

Key words: packaging, special form, Type A, Specification 7A packaging

Impact on processing is moderate.

- Packaging requirements must be an integral consideration in processing. Waste form and packaging must be compatible.

RECORD No. : 10

DOCUMENT TYPE : IE Information Notice

DOCUMENT NUMBER or CITATION: 83-10

DOCUMENT DATE : March 11, 1983

DOCUMENT TITLE : Clarification of Several Aspects Relating to Use of NRC-Certified Transport Packages

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

The notice was issued to clarify aspects relating to the use of NRC certified transport packages for Type B quantities.

1) Addition of metal sheeting for shielding to the outside of the packaging is not acceptable for meeting external radiation limits unless it can be shown that the sheilding will remain in place during an accident senario.

2) Packaging preparation and assembly requires compliance with 10 CFR 71.54. i.e., packaging must not be damaged and can be properly sealed.

3) A NRC Quality Assurance Program complying to 10 CFR 71.51 is required.

4) Contamination surveys must be taken at surface of the package not the external heat barrier.

NOTE: 10 CFR 71 is located in File T-070.

IMPACT ON TREATMENT:

Key words: Type B wastes, 10 CFR 71

Impact on processing is moderate.

RECORD No. : 11

DOCUMENT TYPE : IE Information Notice

DOCUMENT NUMBER or CITATION: 84-14

DOCUMENT DATE : March 2, 1984

DOCUMENT TITLE : Highlights of Recent Transport Regulation Revision by the DOT and NRC

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE: Packaging

SECONDARY LLRW PHASES (P, T, S, or D): P S

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

1983 Revisions to conform DOT and NRC Regulations to the 1973 IAEA Regulations for safe transport of radioactive materials, Safety Series 6. The document covers packaging considerations:

1) Methods of setting activity limits. The new (A1/A2) system replaces the transport group system for 49 CFR 173.435 in accordance with IAEA Safety Series 37.

2) Regulatory format changes to match IEAE Safety Series 6 for 49 CFR 173.389 through 173.398 revised to 173.401 through 173.478.

3) Revision of radiation level limits 49 CFR 173.441 and 173.403. Survey distances revised to metric.

4) Contamination control - wipe sampling 49 CFR 173.443.

5) Low specific activity materials 49 CFR 173.425 - no major changes, however, future changes in LSA packaging requirements are promised.

6) Packaging construction and design DOT Specs 7A and 55, 49 CFR 173 and 178.

7) Empty package contamination.

8) Routing and notification regulation.

RECORD No. : 11

9) Special form materials 49 CFR 173.469.

10) Thermal considerations.

11) Highway route controlled quantities.

12) Cross index of "old" and "new" 49 CFR and 10 CFR 71.

IMPACT ON TREATMENT:

Key words: (A1/A2) highway route controlled quantity, swipe test, Spec 7A, packaging

Impact on processing will be moderate.

RECORD No. : 12

DOCUMENT TYPE : IE Information Notice

DOCUMENT NUMBER or CITATION: 84-50

DOCUMENT DATE : June 21, 1984

DOCUMENT TITLE : Clarification of Scope of Quality Assurance Programs for Transport Packages Pursuant to 10 CFR 50 Appendix B

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): P S

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

Licensees who transport, or deliver to a carrier for transport, Type B or NRC approved Type A transport packages are required to have an NRC approved quality assurance program satisfying 10 CFR 71 Subpart H. NRC approval of application of 10 CFR 50 Appendix B does not imply fulfillment of the QA requirements of 10 CFR 71 Subpart H unless it specifically addresses packages and packaging related activities.

NOTE: 10 CFR 71 is in File T-070, 10 CFR 50 is in File P-085.

IMPACT ON TREATMENT:

Key words: quality assurance, packaging

Impact on processing will be negligible.

RECORD No. : 13

DOCUMENT TYPE : IE Information Notice

DOCUMENT NUMBER or CITATION: 84-72

DOCUMENT DATE : September 10, 1984

DOCUMENT TITLE : Clarification of Conditions For Waste Shipments Subject to Hydrogen Gas Generation

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): P S D

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

Applies to users of NRC certified shipping casks. Potential exists for the generation of hydrogen or other combustible gases within containers of resins, binders, waste sludge, and wet filters. To prevent reduced packaging effectiveness:

1) For packaging containing substances that could potentially form hydrogen or other combustible gases, it must be determined by test or sampling (representative sampling) that for a period of time twice the expected shipment time:

   a) Hydrogen or combustible gas must be less than 5% by volume of the secondary container gas void if at STP.

   b) If the package could form greater than 5% combustible gas, the void must be inerted to limit oxygen to 5% by volume.

2) For packages containing LSA shipped within 10 days of preparation or venting the sampling program (Item 1) is not required.

NOTE: Shipment time means the time from sealing the container until disposal.

RECORD No. : 13

IMPACT ON TREATMENT:

Key words: hydrogen, resins, oxygen inerting, packaging

The full impact of this document has yet to be felt. The requirement to monitor and vent certain packages prior to shipment will impact the design and operation of an interim onsite storage building. Package designs which allow for venting may conflict with disposal site criteria for container handling and integrity. Processing options such as resin drying or incineration may remove the hydrogen gassing concern.

RECORD No. : 14

DOCUMENT TYPE : IE Information Notice

DOCUMENT NUMBER or CITATION: 85-46

DOCUMENT DATE : June 10, 1985

DOCUMENT TITLE : Clarification of Several Aspects of Removable Radioactive Surface Contamination Limits for Transport Packages

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): P

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

The notice is to clarify the regulations for; averaging wipe samples; high efficiency wipe sample methods, wrapping packages, and exclusive use vehicle surveys for surface contamination. (See 49 CFR 173.443.) This document is primarily intended to impact spent fuel casks but may have some applicability to LLRW.

- Table 10 - removable external radioactive contamination wipe limits are based on a 300 cm average wipe area. For Beta emitting nuclides, nuclides with 1/2 lives less than 10 days, and Uranium and Thorium Table 10 specifies 10 microcuries/cm sq., all other alpha emitters 10 microcuries/cm sq.

- For exclusive use vehicles, the contamination levels may rise to 10 times the Table 10 values, provided that Table 10 restrictions are met at the beginning of the shipment.

- The exception to the rule is made for an exclusive use closed transport vehicle. In this case the swipe may yield up to 10 times the values of Table 10 at the beginning of shipment so long as the exterior of the vehicle is adequately marked.

RECORD No. : 14

- Use of high collection efficiency methods is clarified. In general licensees may only utilize demonstrations of high smear collection efficiencies on the same cask for which initial smears indicate the Table 10 limits were exceeded.

- Wrapping of casks that are "weeping" surface contamination are not acceptable unless the wrapping constitutes an integral part of the DOT Specification 7A, Type A package design. Closure integrity and heat removal are significant considerations. NRC authorization of the design modification would be required.

IMPACT ON TREATMENT:

Key words: wipe (swipe) test, surface contamination, exclusive use, closed vehicle, weeping, wrapping

Impact on processing LLRW is expected to be minimal for normal operation. There may be impact on the corrective measures taken when a package violates the 49 CFR 173.443 requirements. The trend toward longer onsite storage may compound difficulties to comply with the restrictions if weeping does occur. Predominently the document is intended to impact spent fuel shipments.

RECORD No. : 15

DOCUMENT TYPE : SECY Paper

DOCUMENT NUMBER or CITATION: 83-514

DOCUMENT DATE : December 16, 1983

DOCUMENT TITLE : NRC Response to Accidents Occurring During the Transportation of Radioactive Material - A Statement of Policy

GOVERNMENTAL LEVEL : Federal

ISSUING AGENCY : NRC

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PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D): P

COMPACT REGION: STATE:

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CONSTRAINT DESCRIPTION:

The document clarifies the roles of the NRC DOT and Federal Emergency Management Agency (FEMA) in response to a nuclear waste transporation accident. Actual emergency response is the responsibility of state and local authorities coordinated with the carrier and generator. The NRC staff will offer assistance and analysis of the situation as a "support" staff. Any federal emergency response is under the responsibility of FEMA.

IMPACT ON TREATMENT:

Key words: emergency response, FEMA

Moderate impact on utility operations.

- No impact on processing.

- Utilities should be aware of the rules, and be prepared to respond to transportation emergencies with containment and cleanup strategies. Adequate equipment and expertise should be available to perform cleanup operations.

- There is incentive to utilize packaging and waste form methods which will minimize contamination and therefore clean up difficulties. These include solidification of resins and incineration of DAW.

RECORD No. : 16

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST19

DOCUMENT DATE : May 21, 1985

DOCUMENT TITLE : Alabama State Transportation Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Dept. of Public Health, Bureau of Radiological Health

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PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Southeast STATE: Alabama

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CONSTRAINT DESCRIPTION:

Alabama Code, Title 22, Chapter 14 (Statute)
Alabama Administrative Code Section 420-3-26 (Rules)

1) Permit required only for oversized or overweight loads.

2) No time restrictions on normal loads.

3) Routing restrictions only on local basis around Mobile, Alabama.

4) DOT Regulations have been adopted.

5) Overweight loads are restricted to work-day day time travel.

IMPACT ON TREATMENT:

Key words: routing

Impact on processing will be minimal.

-Routing around Mobile and overweight time of day restriction may impact cost and scheduling.

RECORD No. : 17

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST01

DOCUMENT DATE : June 3, 1985

DOCUMENT TITLE : Arizona State Transportation Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Arizona State DOT

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PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Western STATE: Arizona

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CONSTRAINT DESCRIPTION:

Statute: Arizona Revised Statute 30 (30-6751 to 30-696) Ch. 4
Rule: 12 ACRR 1

1) Arizona Radiation Regulatory Agency requires prior notification before any shipments are transported.

2) 80,000 lb gross vehicle weight limit (same as U.S. DOT). Overweight shipments require special permits and are restricted to daytime business day travel.

3) Packaged in accordance with NRC/DOT regulations.

IMPACT ON TREATMENT:

Key words: overweight, notification, routing, time of day

Impact on processing will be minimal. Prior notification and time of day restrictions may impact schedule and cost.

RECORD No. : 18

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST20

DOCUMENT DATE : May 23, 1985

DOCUMENT TITLE : Arkansas State Transportation Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : State Board of Health, Transportation Commission

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PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Central STATE: Arkansas

==========

CONSTRAINT DESCRIPTION:

1977 Act 421 Section 3: Hazardous Materials Transport Act
1979 Act 406: Hazardous Waste Management Act
1955 Act 397: Motor Carrier Act.

1) Hazardous waste permit required for carrying LLRW through or with state. Obtained from state DOT and Pollution Control & Ecology Divisions.

2) 80,000 lbs gross vehicle weight limit

3) Commission on Pollution Control & Ecology has power via permit regulations to a) require escorts, b) require notification, and c) restrict routing and times during "unsafe conditions."

4) U.S. DOT Regulations 49 CFR incorporated by reference.

IMPACT ON TREATMENT:

Key words: routing, notification, escorts, permit, costs

Impact on processing will be minimal except for scheduling and routing restrictions that may be imposed.

RECORD No. : 19

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST02

DOCUMENT DATE : June 8, 1985

DOCUMENT TITLE : California State Transportation Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : California Dept. of Health Services, Dept. of Motor Vehicles

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PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Western STATE: California

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CONSTRAINT DESCRIPTION:

Chapter 893, Statute of 1983	- Radioactive materials drivers license & license for vehicle
Chapter 875, Statute of 1980	- Highway patrol identify acceptable routing
Chapter 1093, Statute 1983	- Notification of highway patrol and fire chiefs, 72 and 36 hours in advance respectively.
California Administrative Code Title 13, Acts 2 & 3	- definitions of radioactive and hazardous materials and transportation
California Adm. Code Title 17, Chapter 7.3	- Health & Safety

Additional: Nonuniform local regulations generally restrict time of transportation from 9 a.m. to 6 p.m. (unwritten rule.)

- Local routing restrictions may apply.

- 80,000 lbs weight limit. Special permit for overweight with day time work day restriction for travel time for greater than 97,000 lbs gross vehicle weight.

RECORD No. : 19

IMPACT ON TREATMENT:

Key words: overweight, routing, notification, license, time of day

Impact on processing will be minimal.

- Time and routing restrictions may impact scheduling and costs.

RECORD No. : 20

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST21

DOCUMENT DATE : May 29, 1985

DOCUMENT TITLE : Colorado State Transportation Survey and Attached Legislation

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Colorado Public Utilities Commission

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PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Rocky Mountain STATE: Colorado

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CONSTRAINT DESCRIPTION:

Statute: Colorado Revised Statutes 40-2.1-103 authorizes PUC jurisdiction.
Rules (to be adopted) Case 611 - adoption into Code the U.S. DOT Regulations

1) No PUC issued permit required. However, Dept. of Public Health issues state EPA registration number.

2) 80,000 lbs gross vehicle weight limit.

3) Local routing restrictions in Denver and Aurora - notification of local authorities.

IMPACT ON TREATMENT:

Key words: routing, notification, permit

Impact on processing is minimal except for local routing and notification. This may impact scheduling and costs.

RECORD No. : 21

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST22

DOCUMENT DATE : May 28, 1985

DOCUMENT TITLE : Connecticut State Transportation Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Dept. of Transportation Motor Transport Services Section

==========

PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Northeast STATE: Connecticut

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CONSTRAINT DESCRIPTION:

Public Act 76,-321, Act 77-162: Radioactive Materials Transportation Act
Public Act 79-527: Nuclear Wastes Transportation Act
Connecticut Dept. of Transportation Rules, Transportation of Radioactive Materials Section 19-409d-53, -54, -55.

NOTE: LLRW is not considered as a "Hazardous Waste." See Referenced Legislation for details.

1) Permit required from state DOT for large quantity wastes, fuel cycle wastes, vehicles requiring placarding. Permit lasts 1 day $25/day.

2) 80,000 lb gross vehicle weight limit.

3) Time restrictions 9:00 a.m. - 4:00 p.m. Monday to Friday.

4) U.S. DOT Regulations 49 CFR adopted by reference.

IMPACT ON TREATMENT:

Key words: time restrictions, routing, permit, costs

Impact on processing will be small. Time of day restrictions encourage attention to scheduling and routing.

RECORD No. : 22

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST03

DOCUMENT DATE : May 31, 1985

DOCUMENT TITLE : Delaware State Transportation Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Delaware State Police, Department of Traffic

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PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Appalachian STATE: Delaware

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CONSTRAINT DESCRIPTION:

Delaware Code: Title 29, Section 8226 (Statute)

1) 80,000 lb gross vehicle weight

2) Localities suggested routings: rarely enforced.

3) Spot inspection of vehicles by state police

4) High level wastes (spent fuel) routings are restricted.

IMPACT ON TREATMENT:

Key words: spot inspection

Impact on processing will be minimal.

RECORD No. : 23

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST23

DOCUMENT DATE : May 28, 1985

DOCUMENT TITLE : Florida State Transportation Survey and Associated Statutes

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Florida Dept. of Transportation Bureau of Weights and Dept. of Health

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PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Southeast STATE: Florida

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CONSTRAINT DESCRIPTION:

NOTE: Applies to all shippers including power plants

Florida Admin. Code Section 10D-91 (10D-56) Manifest Regulations
Florida Statute Section 404.20; Florida Statute, Chapter 316, Section 316.302 Incorporation of 49 CFR Regulations
Florida Admin. Code Section 10D-63 (Rule) Inspection (filed with General State Survey P-032)
Florida Statute Section 404 Radiation Rules, Florida Statute 381 Section 512 Transportation of Radioactive Material.

1) Gross vehicle weight 80,000 lbs - graduates lower depending on length and number of axles.

2) Dept. of Health and Rehabilitative Services inspects each shipment at site of generation - fee is charged to the producer. (Item 5)

3) Manifest required, but no permit is required.

4) 48 hr prenotification to Dept. of Health and Rehabilitation Services of any transportation.

5) $1.25/ft fee for waste shipped. (Ref. Statutes 404.161, filed with P-032.)

RECORD No. : 23

IMPACT ON TREATMENT:

Key words: volume surcharge, costs, notification

Direct impact on processing is minimal as far as packaging or waste form is concerned; however, the volume surcharge encourages volume reduction for all wastes transported across the state. Prior notification and 100% inspection may affect scheduling.

RECORD No. : 24

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST04

DOCUMENT DATE : June 6, 1985

DOCUMENT TITLE : Georgia State Transportation Survey and Associated Documents

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Georgia Dept. of Transportation, Office of Permits and Enforcement

==========

PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Southeast STATE: Georgia

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CONSTRAINT DESCRIPTION:

Georgia Code Section 33-6-220: Transportation and Hazardous Materials Act
Rules: R672-10: Rules of State Department of Transportation

1) Hazardous materials permit and fee payment required with letter of intent. Fee = $25/shipment or $100/year.

2) 80,000 lb gross vehicle limit - special permit and restrictions for overweight loads.

3) No time restrictions unless oversized dimensions requirements are surpassed.

4) Routing determined by permit.

5) Notification of authorities on annual basis.

6) Vehicle inspection may be required.

7) Liability insurance required.

RECORD No. : 24

IMPACT ON TREATMENT:

Key words: permit, routing, oveweight, costs

Impact on processing is minimal.

- Overweight permit restrictions on time and routing may affect costs and schedule.

RECORD No. : 25

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST05

DOCUMENT DATE : June 3, 1985

DOCUMENT TITLE : Idaho State Transportation Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Idaho Dept. of Health & Welfare, Div. of Environment

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PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Northwest STATE: Idaho

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CONSTRAINT DESCRIPTION:

Idaho Code Section 39.3002 (Statute)
Idaho Radiation Control Regulation (Rules) 19073

1) No "hazardous" waste license required.

2) 80,000 lbs gross vehicle weight limit.

3) May have state inspection by State Police or Public Utilities Commission inspectors. May also have port of entry inspection by state DOT.

4) Registration with Dept. of Health and Welfare required.

IMPACT ON TREATMENT:

Key words: notification, inspection

Impact on processing will be minimal.

RECORD No. : 26

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST06

DOCUMENT DATE :

DOCUMENT TITLE : Illinois State Transportation Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Illinois DOT Div. of Traffic Safety-Hazardous Materials Group & Dept. of Nuclear Safety

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PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Central Midwest STATE: Illinois

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CONSTRAINT DESCRIPTION:

Illinois Revised Statute, Chapter 95 1/2, Section 700: Illinois Vehicle Code
Illinois Hazardous Materials Transportation Regulation

1) No DOT or IDNS permit required. Illinois Environmental Protection Agency may require a permit for hazardous wastes.

2) 80,000 lb gross vehicle weight limit. Overweight shipments restricted to work-day, day time travel.

3) No time or state routing restrictions for normal dimension loads. Overweight permitting restrictions may include routing restrictions.

4) Current state regulations use old federal transport groupings rather than A1/A2 System.

IMPACT ON TREATMENT:

Key words: routing, time

Impact on processing will be minimal except that overweight transport time restrictions may influence scheduling and cost.

RECORD No. : 27

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST07

DOCUMENT DATE : June 6, 1985

DOCUMENT TITLE : Indiana State Transportation Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Indiana State Police

==========

PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Midwest STATE: Indiana

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CONSTRAINT DESCRIPTION:

IC 8-2-7-43.5 (Statute only). Adoption of 49 CFR 171 through 178, and 387, 390, 391, 393, 396, 397, 398.

1) No permit required

2) 80,000 lb gross vehicle weight. Overweight permit restriction to weekday, daylight hours.

3) No time restrictions

4) Routing restrictions: in Marion County (Indianapolis) shipment along I-70 prohibited.

5) Indiana Toll Road requires proof of liability insurance, and registration prior to transport.

6) Law enforcement authorities have inspection rights.

IMPACT ON TREATMENT:

Key words: inspection, routing, liability

Impact on processing will be minimal. Overweight restrictions will impact scheduling and costs.

RECORD No. : 28

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST33

DOCUMENT DATE : June 29, 1985

DOCUMENT TITLE : Iowa State Transportation Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Dept. of Water, Air & Waste Management and Dept. of Transportation

==========

PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Midwest STATE: Iowa

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CONSTRAINT DESCRIPTION:

Iowa Adm. Code, Chapter 820
U.S. DOT regulations 49 CFR adopted by Iowa DOT.

1) 80,000 lbs weight limit (gross vehicle weight).

2) No state time or routing restrictions.

3) For overweight loads, 24 hour travel allowed on a "per load" basis.

4) For Yellow III placarded radioactive material shipments, prior notification of state is required.

IMPACT ON TREATMENT:

Impact on processing is minimal.

RECORD No. : 29

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST34

DOCUMENT DATE :

DOCUMENT TITLE : Kansas State Transportation Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Dept. of Health and Environment

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PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Central STATE: Kansas

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CONSTRAINT DESCRIPTION:

Kansas Statute Annotated, Chapter 48-1601 et seq.
Kansas Regulations Section 2835-143 & 144: Transportation Groupings, Section 2835-195 Intrastate Transportation, Section 2835-196 Preparation for Transportation

Statute and regulations filed with general Kansas State Survey P-036.

These regulations do not apply where NRC regulation holds jurisdiction i.e., power plants.

- General licenses required.
- Opening, closing, and handling instructions must be included with all shipments.
- 80,000 lbs gross vehicle weight limit for standard load.

IMPACT ON TREATMENT:

Key words: transport group

Impact on processing will be minimal.

RECORD No. : 30

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST08

DOCUMENT DATE : June 3, 1985

DOCUMENT TITLE : Kentucky State Transportation Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Kentucky Transportation Cabinet, Permit Division and State Fire Marshall

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PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Central Midwest STATE: Kentucky

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CONSTRAINT DESCRIPTION:

(Statute) Kentucky Revised Statute Section 174.400 et seq.
(Rules) 601 KAR 1:025 (Kentucky DOT Regulations)
815 KAR 10:20 (Incorporation of U.S. DOT Regulations 49 CFR by Reference)

1) Permit requirement for hazardous and/or radioactive wastes

2) Proof of liability and property damage insurance

3) 80,000 lb gross vehicle weight limit. Overweight permit restricts travel time to work day, day time hours.

4) Local routing restrictions may apply

5) No time restrictions

6) Prenotification of state officials regarding routing

IMPACT ON TREATMENT:

Key words: permit, liability, notification

Impact on processing will be minimal.

-Prior notification, routing and time of day restrictions may affect schedule and cost.

RECORD No. : 31

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST16

DOCUMENT DATE : May 28, 1985

DOCUMENT TITLE : Louisiana State Transportation Survey and Attached Legislation

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Dept. of Public Safety

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PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Southeast STATE: Louisiana

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CONSTRAINT DESCRIPTION:

Act 83 of 1979 Chapter 12 (32-1501-32-1517) Regulation of Transportation of Hazardous Materials
Louisiana Revised Statute 30:1101 et. seq. (Louisiana Nuclear Energy and Radiation Control Law)
49 CFR 170 through 179 have been incorporated into Louisiana codes.

1) No permit required for LLRW.

2) No state routing requirements (except U.S. DOT suggested routes.)

3) Manifest requirements as per 30:1101.

4) 80,000 lbs gross vehicle weight limit.

5) Liability insurance for $300,000 for public hazard, $100,000 for property damage for each carrier.

IMPACT ON TREATMENT:

Key words: liability

Impact on processing will be minimal.

RECORD No. : 32

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST09

DOCUMENT DATE : June 3, 1985

DOCUMENT TITLE : Maine State Transportation Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Maine State Police and Dept. of Public Safety

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PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Northeast STATE: Maine

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CONSTRAINT DESCRIPTION:

Maine Revised Statute, ann., Title 25, Chapter 256: Hazardous Materials Control

1) Permit required only for oversized loads.

2) 80,000 lb gross vehicle weight limit.

3) No time restrictions.

4) No route restrictions.

5) 24 hours prenotification of shipment.

IMPACT ON TREATMENT:

Key words: prenotification, permit

Impact on processing will be minimal.

RECORD No. : 33

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST10

DOCUMENT DATE : June 7, 1985

DOCUMENT TITLE : Maryland State Transportation Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Maryland Dept. of Health & Mental Hygiene, Waste Management Adm.

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PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Appalachian STATE: Maryland

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CONSTRAINT DESCRIPTION:

Annotated Code of Maryland, Health and Environmental Code, Title 8

1) No permit required.

2) 80,000 lbs gross vehicle weight limit. Overweight permit requires workday, daytime travel only.

3) No routing restrictions.

4) No time restrictions for standard load.

NOTE: A manifest requirement is to be developed.

IMPACT ON TREATMENT:

Key words: overweight, permit

Impact on processing will be minimal.

- Overweight time of day restrictions may affect costs and scheduling.

RECORD No. : 34

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST11

DOCUMENT DATE : June 3, 1985

DOCUMENT TITLE : Michigan State Transportation Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : State Police Motor Carrier Enforcement, and Public Health Dept.

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PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Midwest STATE: Michigan

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CONSTRAINT DESCRIPTION:

Motor Carrier Safety Rules: Michigan Act 181
Public Acts of 1963, as amended. (Enrolled House Bill #5092 attached)

1) No permit is required.

2) 80,000 lbs gross vehicle weight limit. Overweight permit restricts travel to workdays daytime hours.

3) No state time restrictions for normal shipment.

4) No state route restrictions.

5) Prior notification of shipment must be given to the Dept. of Public Health.

6) Department of Public Health performs monitoring and inspection.

7) State police may inspect vehicles.

8) DOT 49 CFR 171 to 178 adopted.

RECORD No. : 34

IMPACT ON TREATMENT:

Key words: overweight, route, inspection, notification

Impact on processing will be minimal.

- Prior notification and overweight time of day restrictions may affect scheduling and cost.

RECORD No. : 35

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST12

DOCUMENT DATE : June 6, 1985

DOCUMENT TITLE : Minnesota State Transportation Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Minnesota DOT Div. of Motor Carriers, Minnesota Dept. of Health

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PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Midwest STATE: Minnesota

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CONSTRAINT DESCRIPTION:

Minnesota Statute Ann. Section 221.033
Minnesota Statute Section 144.12
Minnesota Code Section 4730 Department of Health Regulations

1) No permit requirements (Department of Health requires a permit for oversize loads.)

2) 80,000 lb gross weight limit.

3) Local routing restrictions.

4) No time restrictions for a normal load. Overweight permit restricts travel to workday, daytime hours.

5) 85 cents/cubic foot fee on waste shipment if greater than 100 cubic feet per year. ($100/year if less than 100 cubic feet/year.) Ref: File P-041, Minnesota Rules 7042.0010 to 7042.0060.

RECORD No. : 35

IMPACT ON TREATMENT:

Key words: volume surcharge, overweight

Impact on processing will be moderate.

- Volume surcharges will encourage volume reduction.
- Time restrictions for overweight loads may affect schedule and cost.

RECORD No. : 36

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST13

DOCUMENT DATE : June 6, 1985

DOCUMENT TITLE : Mississippi State Transportation Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Department of Health, Division of Radiological Health

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PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Southeast STATE: Mississippi

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CONSTRAINT DESCRIPTION:

Mississippi Law of 1982, Chapter 432: Mississippi Radioactive Transportation Act (NOTE: Pre-1983 CFR References should be revised.

1) Radioactive waste transportation permit (MEMA Form RAD 5-1) is required from the Department of Health.

2) 80,000 lb gross vehicle weight limit. Overweight permit restricts travel time to Monday through Friday business hours, Saturdays till noon.

3) No time restrictions on normal loads.

4) No routing restrictions.

5) Reporting manifest must accompany each shipment.

6) Spot checking by Department of Health to verify safety and manifest.

7) Proof of liability of shipper.
8) Permit fees - $500/year for Mississippi Class B waste (LLRW).

(NOTE: use of Pre-1983 classifications and CFR References.)

RECORD No. : 36

9) Prior notification to Mississippi Emergency Management Agency.

IMPACT ON TREATMENT:

Key words: inspection, permit, costs, notification

Impact on processing will be minimal. Prior notification, overweight time of day restrictions, and state manifest may affect schedule and cost.

RECORD No. : 37

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST35

DOCUMENT DATE : June 26, 1985

DOCUMENT TITLE : Missouri State Transportation Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Dept. of Public Safety, Highway Patrol

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PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Midwest
Midwest STATE: Missouri

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CONSTRAINT DESCRIPTION:

Missouri Statutes Section 307.177

1) Permit only for oversized or overweight load. Overweight loads restricted to work-day day time travel.

2) No time or route restrictions. Suggest avoidance of Kansas City and St. Louis.

3) 80,000 lbs gross vehicle weight.

4) Prenotification of highway patrol is preferred.

5) DOT requirements adopted.

IMPACT ON TREATMENT:

Key words: prenotification, overweight loads

Impact on processing will be minimal. Overweight time of day restriction may affect schedule and cost.

RECORD No. : 38

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST39

DOCUMENT DATE : July 3, 1985

DOCUMENT TITLE : Montana State Transportation Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Dept. of Justice, Div. of Highway Patrol

==========

PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Northwest STATE: Montana

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CONSTRAINT DESCRIPTION:

Admin. Rules of Montana Section 38.3.1901 and 38.3.1902
Montana Code Annotated Section 6912.201: Adoption of DOT Regulations
(repealed as of July 1, 1985.)

1) No permit required.

2) No time or routing restrictions.

3) 80,000 lbs gross vehicle limit.

4) Notification is suggested.

IMPACT ON TREATMENT:

Key words: notification

Impact on processing is minimal.

RECORD No. : 39

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST36

DOCUMENT DATE : June 25, 1985

DOCUMENT TITLE : Nebraska State Transportation Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : State Highway Patrol

==========

PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Central STATE: Nebraska

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CONSTRAINT DESCRIPTION:

Revised Statutes of Nebraska Section 71-3501 et seq. (filed with general State Survey P-025.)

1) No transport permit unless oversize or overweight load.

2) Route restrictions - 2 approved routes on interstate system.

3) Prenotification of highway patrol by certified mail.

4) Escort required in metropolitan areas for certain levels of radiation.

IMPACT ON TREATMENT:

Key words: routing, prenotification, permit, overweight

Impact on processing will be minimal except that routing and prenotification may impact costs of transportation.

RECORD No. : 40

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST44

DOCUMENT DATE : July 3, 1985

DOCUMENT TITLE : Nevada State Transportation Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Nevada Div. of Highway Patrol (Dept. of Motor Vehicles)

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PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Rocky Mountain STATE: Nevada

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CONSTRAINT DESCRIPTION:

Nevada revised statutes 481.051 and 706.171 adoption of 49 CFR 171 through 49 CFR 178 and 49 CFR 390 through 49 CFR 397.

- Time restriction: maximum 12 hours of driving in any 24 hour period or 15 hours of duty and driving combined unless the driver is off duty for 8 consecutive hours after 12 hours of driving (for single driver).

- Permit from Public Service Commission required.

- 80,000 lbs gross vehicle weight limit.

- Prenotification to highway patrol required.

- No mandatory routing restrictions although Interstates are preferred.

- Beatty site delivery 7:00 a.m. to 3:30 p.m. Monday through Friday.

RECORD No. : 40

IMPACT ON TREATMENT:

Key words: permit, prenotification, time restrictions

Impact on processing will be negligible.

- Prenotification and time restrictions may affect scheduling and costs.

RECORD No. : 41

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST18

DOCUMENT DATE : June 28, 1985

DOCUMENT TITLE : New Hampshire State Transportation Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Transporation Authority of the Department of Safety

==========

PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Northeast STATE: New Hampshire

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CONSTRAINT DESCRIPTION:

State regulations incorporate:

1) 10 CFR 71 and 73, 49 CFR 170 to 189, 49 CFR 390 to 397, 42 CFR 72

2) Transport permit and associated fees are required

3) 80,000 lbs gross vehicle weight for semi rig, 55,000 lbs 3 axle truck, 35,000 lbs 2 axle truck

4) No special tariffs apply, except $25/yr or $15/occasion permit for "Hazardous Waste" shipment.

5) Law enforcement officers may inspect premises and equipment of shippers and carriers on demand in accordance with the law in enforcing the regulations.

6) Overweight loads are restricted to work-day day time travel.

IMPACT ON TREATMENT:

Impact on processing will be minimal. Overweight time of day restrictions will affect schedule and cost.

RECORD No. : 42

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST40

DOCUMENT DATE : July 1, 1985

DOCUMENT TITLE : New Jersey State Transportation Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Bureau of Radiation Protection, Dept. of Environmental Protection

==========

PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Northeast STATE: New Jersey

==========

CONSTRAINT DESCRIPTION:

1) Certificate of Handling required for shipment greater than 20 curies.

2) Certificate specifies routing and day time travel, and is based on type quantity and material.

3) Local routing restrictions on bridges.

4) 80,000 lbs gross vehicle weight limit.

IMPACT ON TREATMENT:

Routing restrictions and day time travel will influence scheduling and costs.

RECORD No. : 43

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST47

DOCUMENT DATE : July 8, 1985

DOCUMENT TITLE : New Mexico State Transportation Survey
and Associated Document

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : New Mexico Bureau of Radiation Protection

==========

PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Rocky Mountain STATE: New Mexico

==========

CONSTRAINT DESCRIPTION:

New Mexico Radiation Protection Regulations, Sections 1 and 3-800 et. seq. and Section 4.

- Permit required from Bureau of Radiation Protection.
- 80,000 lbs gross vehicle weight limit.
- No state routing or time restrictions for standard shipments although direct interstate routes and avoidance of tunnels are preferred.
- Statement of shipment origin, destination, routing, and nature of waste is required for permitting.
- Liability of licensee.

IMPACT ON TREATMENT:

Key words: permit, liability

Impact on processing will be minimal.

RECORD No. : 44

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST43

DOCUMENT DATE : July 3, 1985

DOCUMENT TITLE : New York Transportation Survey and Associated Documents

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Highway Dept. Division of State Police

==========

PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Northeast STATE: New York

==========

CONSTRAINT DESCRIPTION:

New York Transportation Law - 14F17 NYCRR 507

1) No permit required.

2) Time and routing restrictions locally (New York City).

3) Notification and approval of routing by State Emergency Management Office 7 days prior to shipment.

4) 80,000 lbs gross vehicle weight limit.

IMPACT ON TREATMENT:

Key words: notification

Impact on processing will be minimal. Routing and time of day restrictions may affect schedule and cost.

RECORD No. : 45

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST37

DOCUMENT DATE : June 26, 1985

DOCUMENT TITLE : North Carolina State Transportation Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Department of Transportation, Division of Motor Vechicles, Weight Enforcements

==========

PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Southeast STATE: North Carolina

==========

CONSTRAINT DESCRIPTION:

North Carolina General Statutes, Section 62-281: U.S. DOT Regulation Adoption

1) Trucks with 3 or more axles require fuel permit stickers.

2) No time or routing restrictions except local weight limits.

IMPACT ON TREATMENT:

Impact on processing will be minimal.

RECORD No. : 46

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST38

DOCUMENT DATE : June 12, 1985

DOCUMENT TITLE : North Dakota State Transportation Survey and Associated Documents

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : State Highway Patrol

==========

PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Dakotas STATE: North Dakota

==========

CONSTRAINT DESCRIPTION:

North Dakota Century Code Section 39-21 et. seq. (Regulations)
North Dakota Administrative Code Section 38-03 Appendix E,
Section 38-04, Appendix F.

1) DOT regulations have been adopted.

2) 80,000 lbs gross vehicle weight.

IMPACT ON TREATMENT:

Impact on processing will be minimal.

RECORD No. : 47

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST32

DOCUMENT DATE : June 12, 1985

DOCUMENT TITLE : Ohio State Transportation Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Dept. of Health, Bureau of Environmental Health, Radiological Unit

==========

PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Midwest STATE: Ohio

==========

CONSTRAINT DESCRIPTION:

Ohio Administrative Code Section 3701-38-37.

1) U.S. DOT regulations adopted.

2) 80,000 lbs/gross vehicle weight.

3) State controlled radioactive material registration.

4) Overweight loads restricted to work-day day time travel.

IMPACT ON TREATMENT:

Impact on processing is minimal. Overweight time of day restriction may affect schedule and cost.

RECORD No. : 48

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST30

DOCUMENT DATE : June 27, 1985

DOCUMENT TITLE : Oklahoma State Transportation Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Dept of Public Safety, Division of Highway Patrol

==========

PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Central STATE: Oklahoma

==========

CONSTRAINT DESCRIPTION:

1) The state of Oklahoma has exempted from its jurisdiction transporters of radioactive material who conform to 49 CFR.

2) Prenotification of Dept. of Public Safety is encouraged but not required.

3) No tariffs apply.

IMPACT ON TREATMENT:

Key words: prenotification

Impact on processing will be minimal.

RECORD No. : 49

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST46

DOCUMENT DATE : July 5, 1985

DOCUMENT TITLE : Oregon State Transportation Survey and Associated Documents

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Oregon Dept. of Energy

==========

PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Northwest STATE: Oregon

==========

CONSTRAINT DESCRIPTION:

Oregon Administrative Rules, Chapter 345, Division 60
Oregon Revised Statute Section 469.603 et. seq.

- Radioactive materials transportation permit from Oregon DOE. (one year permit) (Note - a Hanford Site use permit is accepted as an Oregon transport permit.)

- Port of entry inspection for highway route control quantity.

- $70/shipment fee is required.

- Prenotification of Oregon DOE.

- Adoption of 49 CFR 131 through 179, 49 CFR 390 through 397 of 10 CFR 71.

- Routing and time restrictions currently applied only for spent fuel shipments; however, permitting requires statement of planned route and may be restricted.

- 80,000 lbs gross vehicle weight limit.

RECORD No. : 49

IMPACT ON TREATMENT:

Key words: permit, prenotification, inspection, routing, costs

Impact on processing is expected to be minimal. Prenotification and shipment fee will affect schedule and cost.

RECORD No. : 50

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST48

DOCUMENT DATE : June 12, 1985

DOCUMENT TITLE : Pennsylvania State Transportation Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Pennsylvania Department of Transportation

==========

PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Appalachian STATE: Pennsylvania

==========

CONSTRAINT DESCRIPTION:

Act number 1984-99 amending Title 75 and Regulations 67 PA Chapter 403 Pennsylvania Department of Transportation, Hazardous Substances Transportation Board.

1) Materials permit and fee from Pennsylvania Turnpike Authority.

2) 80,000 lbs gross vehicle weight limit

3) Tunnels restricted for hazardous materials transit.

4) DOT spot inspection

5) Incorporation of portions of 49 CFR as indicated in 67 PA Chapter 403.4 as well as portions of 42 CFR and 45 CFR.

6) Overweight loads are restricted to work-day day time travel and half days on Saturday.

NOTE: statutes and regulations attached to survey.

RECORD No. : 50

IMPACT ON TREATMENT:

Impact on processing will be minimal

- Routing and overweight time of day restrictions will impact schedule and cost.

RECORD No. : 51

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST14

DOCUMENT DATE : June 6, 1985

DOCUMENT TITLE : Rhode Island State Transportation Survey
Associated Documents

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Dept. of Health, Div. of Occupational
Health and Radiation Safety

==========

PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Northeast STATE: Rhode Island

==========

CONSTRAINT DESCRIPTION:

Rhode Island General Laws, Title 23, Chapter 1.3 (Statute)
Rhode Island Regulations R23-1.3 Rad.

1) Placard permit required by PUC (if placard is required by U.S. DOT or U.S. NRC Regulations.)

2) 80,000 lbs gross vehicle weight. Overweight permit restricts travel to workdays, daytime hours.

3) Some time restrictions maybe imposed by PUC.

4) Prenotification of Governor required for shipments of Type B packaging as designed per 10 CFR 71.

5) Opening and closing procedures, should be established by the utility and forwarded to the consignee for all packages.

RECORD No. : 51

IMPACT ON TREATMENT:

Key words: permit, overweight, notification, costs

Impact on processing will be minimal.

-Prior notification and time of day restrictions may affect schedule and cost.

RECORD No. : 52

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST41

DOCUMENT DATE : July 1, 1985

DOCUMENT TITLE : South Carolina State Transportation Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Dept. of Health & Environmental Control, Radiological Health

==========

PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Southeast STATE: South Carolina

==========

CONSTRAINT DESCRIPTION:

Dept. of Health & Environmental Control Regulations Section 61-83
South Carolina Code Section 13-70-40.

1) U.S. DOT regulations adopted.

2) No time or route restrictions (routing must be indicated on permit.)

3) Transporters must notify Dept. of Health 72 hours in advance.

4) Annual shipping permit from Bureau of Radiological Health.

5) Liability insurance of $500,000.

6) Permit fees based on curie content, volume and whether the material is buried within the state: Class X: Less than 75 cubic feet or 100 Ci, Class Y greater volume or activity than Class X both Class X and Y for disposal in State, Class Z no disposal in state.

7) 80,000 lbs gross vehicle weight standard limit.

RECORD No. : 52

IMPACT ON TREATMENT:

Key words: permit, prenotification, liability insurance, costs

Impact on processing will be minimal.

RECORD No. : 53

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST31

DOCUMENT DATE : June 25, 1985

DOCUMENT TITLE : South Dakota State Survey and Associated Statutes and Regulations

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : State Highway Patrol

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PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Dakotas STATE: South Dakota

==========

CONSTRAINT DESCRIPTION:

South Dakota Code Section 49-28A (1984)
South Dakota Regulations Article 61.23 Motor Carrier Safety and Transportation of Hazardous Wastes

1) Permit from Dept. of Commerce if 80,000 lbs weight limit is exceeded.

2) No time or state routing restrictions.

3) Rules may not apply to radioactive material transported under permit issued by the U.S. NRC.

4) 49 CFR 171-179 and 49 CFR 390-397 are adopted as state rules.

IMPACT ON TREATMENT:

Key words: overweight, permit

Impact on processing is minimal.

RECORD No. : 54

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST29

DOCUMENT DATE : June 11, 1985

DOCUMENT TITLE : Tennessee State Transportation Survey and Attached Regulations

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Public Service Commission

==========

PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Southeast STATE: Tennessee

==========

CONSTRAINT DESCRIPTION:

U.S. DOT regulations adopted.
Tennessee Code Annotated 6515-113: PSC Motor Carrier Regulations

1) Permit from Tennessee Public Health Service, based on U.S. EPA registration number.

2) 80,000 lbs gross vehicle weight limit.

3) No state time or routing restrictions although interstate and city bypasses preferred. Local routing restrictions in Nashville and Memphis.

4) Hired carriers must register as "exempt for hire" for the PSC.

5) Overweight loads restricted to work-day day time travel.

IMPACT ON TREATMENT:

Key words: permits

Impact on processing will be minimal. Overweight time of day and local routing restrictions may affect schedule and cost.

RECORD No. : 55

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST28

DOCUMENT DATE : June 25, 1985

DOCUMENT TITLE : Texas State Transportation Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Dept. of Health Bureau of Radiation Control

==========

PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Texas STATE: Texas

==========

CONSTRAINT DESCRIPTION:

Texas regulations for control of radiation Section 41.100 citation for U.S. DOT rules adoption (copy filed with State Survey P-049).

1) No permit required.

2) Notification of Dept. of Public Safety by trucking company prior to shipment of 30,000 curies or more.

3) Regular 80,000 lbs/gross vehicle weight.

4) Interstate routes perferred. El Paso, Dallas, Corpus Christi, restrict access to interstates only.

5) No LLRW tariffs.

6) Opening and package handling instructions must be sent to consignee.

IMPACT ON TREATMENT:

Key words: notification, routing

Impact on processing will be minimal.

RECORD No. : 56

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST45

DOCUMENT DATE : July 3, 1985

DOCUMENT TITLE : Utah State Transportation Survey and Associated Documents

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Utah Dept. of Transportation

==========

PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Northwest STATE: Utah

==========

CONSTRAINT DESCRIPTION:

Dept. of Transportation Act Section 63-49-1
State Archives 1975, H.B. 22 (adopts 49 CFR).

- 80,000 gross vehicle weight limit.
- No permit required.
  (local restrictions may apply, i.e., Provo City restriction of trucks in business district.)
- DOT regulations adopted by reference.

IMPACT ON TREATMENT:

Impact on processing will be negligible.

RECORD No. : 57

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST15

DOCUMENT DATE : June 6, 1985

DOCUMENT TITLE : Vermont State Transportation Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Agency of Transportation, Operations Division

==========

PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Northeast STATE: Vermont

==========

CONSTRAINT DESCRIPTION:

Vermont Statute Ann., Title 3, Chapter 55, Section 3116a
Vermont Statute Ann., Title 10, Section 6607
Vermont Statute Ann., Title 19, Section 50

1) Permit for highway route control quantities required (fee $1,000). Permit for hazardous waste as defined in 49 CFR 171.8 is required ($10/year fee.) Permit processed through Department of Motor Vehicles.

2) 80,000 lb gross vehicle weight limit. Overweight permit restricts travel time to weekdays, daytime hours.

3) Designated routes established in regulations for highway route controlled quantities.

4) Escorts may be required.

5) Notification of Secretary of Transportation 4 hours prior to shipment for highway route control quantities.

NOTE: Municipal and some state regulations are more stringent than U.S. DOT requirements.

RECORD No. : 57

IMPACT ON TREATMENT:

Key words: permit, escorts, overweight, notification

Impact on processing will be minimal.

-Routing and overweight time of day restrictions may affect schedule and cost.

RECORD No. : 58

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST27

DOCUMENT DATE : June 11, 1985

DOCUMENT TITLE : Virginia State Transportation Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Dept. of State Police & State Board of Health Division of Waste Management

==========

PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Southeast STATE: Virginia

==========

CONSTRAINT DESCRIPTION:

Virginia Code, Title 32, Chapter 6, Article 3 (Copy filed with State Survey P-051)

1) Permit only for overweight or oversized loads from Dept. of Highways.

2) State routes - 80,000 lbs gross vehicle limit, Interstate 90,000 lbs.

3) 49 CFR requirements adopted.

4) License must establish procedures for opening and closing packages.

NOTE: Regulation of power plant operations is under U.S. NRC Jurisdiction.

IMPACT ON TREATMENT:

Key words: permit, overweight

Impact on processing will be minimal.

RECORD No. : 59

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST42

DOCUMENT DATE : June 28, 1985

DOCUMENT TITLE : Washington State Transportation Survey and Associated Documents

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : State Highway Patrol, and Social & Health Services Dept.

==========

PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Northwest STATE: Washington

==========

CONSTRAINT DESCRIPTION:

(Statute) Revised Code of Washington Section 46.48.170 et. seq.
Rules Washington Administrative Code Section 402.19.530.

1) $80/year or $50/shipment burial permit is required.

2) 80,000 lbs gross vehicle weight.

3) Day light travel preferred.

4) All vehicles enter state at Spokane or Plymouth and use Interstate 90 or 82.

5) All vehicles must be inspected at entry point (port of entry).

6) Overweight loads restricted to week-day day time travel.

IMPACT ON TREATMENT:

Key words: routing, time restrictions, inspection, permit

Impact on processing will be minimal. 100% vehicle inspection, overweight time of day restriction and routing requirement will affect scheduling and costs.

RECORD No. : 60

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST17

DOCUMENT DATE : June 12, 1985

DOCUMENT TITLE : West Virginia State Transportation Survey and Associated Rules and Regulations and Statutes

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Public Service Commission

==========

PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Appalachian STATE: West Virginia

==========

CONSTRAINT DESCRIPTION:

1) Adoption of 49 CFR 171, 172, 173, 177, 391, 392, 393, 394, 395, 396, and 397

2) 80,000 lb weight limit

3) Private companies are not regulated by any agency in West Virginia . "For Hire" carriers are regulated if the carried commodity is regulated by the Interstate Commerce Commission.

4) Overweight loads are restricted to work-day day time travel.

IMPACT ON TREATMENT:

Impact on processing will be minimal. Overweight time of day restrictions will affect schedule and cost.

RECORD No. : 61

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST25

DOCUMENT DATE : May 29, 1985

DOCUMENT TITLE : Wisconsin State Transportation Survey

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Wisconsin State Patrol

==========

PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Midwest STATE: Wisconsin

==========

CONSTRAINT DESCRIPTION:

Rule: Transportation Order 326 (Emergency Rules)
40 CFR 107 to 178 are to be incorporated in the code by reference.

1) 80,000 lbs gross vehicle weight limit.

2) No time or routing restrictions currently enforced.

3) Permitting required only for overweight loads.

4) Prenotification required for overweight loads.

IMPACT ON TREATMENT:

Key words: overweight, permit, prenotification

Impact on processing is minimal except that additional restrictions for oversize, overweight loads may impact cost and schedule.

RECORD No. : 62

DOCUMENT TYPE : State Transportation Survey

DOCUMENT NUMBER or CITATION: SL-ST26

DOCUMENT DATE : June 26, 1985

DOCUMENT TITLE : Wyoming State Transportation Survey and Associated Documents

GOVERNMENTAL LEVEL : State

ISSUING AGENCY : Public Service Commission, Motor Transportation Dept.

==========

PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: Rocky Mountain STATE: Wyoming

==========

CONSTRAINT DESCRIPTION:

Public Service Commission Book of Rules governing motor carriers:

1) Permits 2 types: $10/trip plus 2.6 mills/ton-mile or annual $2,000/rig

2) 80,000 lb gross vehicle weight - special overweight permits required

3) No time or routing restrictions for normal sized loads.

IMPACT ON TREATMENT:

Key words: permits, insurance

Impact on processing will be minimal. Ton-mile shipping fees will impact cost.

RECORD No. : 63

DOCUMENT TYPE : Rate Schedule

DOCUMENT NUMBER or CITATION: Docket MC-109397

DOCUMENT DATE : July 9, 1985

DOCUMENT TITLE : Tri-state Motor Transit Tariffs

GOVERNMENTAL LEVEL : Private

ISSUING AGENCY : Tri-state Motor Transit Company

==========

PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

==========

CONSTRAINT DESCRIPTION:

The document provides the transportation charge schedules for shipment of LLRW. It includes vehicle categories and the associated restrictions such as loading conditions, hours of service, and mileage fees.

IMPACT ON TREATMENT:

Key words: costs, overweight, mileage

The impact on treatment is moderate:

1) Shipment weights must be considered in determining costs.

2) Transport cost should be compared with disposal charges to find optimal combination of waste volume, package type, weight, nuclide concentration, and destination.

RECORD No. : 64

DOCUMENT TYPE : Regulation Summary

DOCUMENT NUMBER or CITATION:

DOCUMENT DATE : July 1, 1985

DOCUMENT TITLE : Vehicle Sizes and Weights Manual. State by State Summary of Uniform Federal Size and Weight Limits.

GOVERNMENTAL LEVEL : Private

ISSUING AGENCY : J. J. Keller and Associates, Inc.

==========

PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

==========

CONSTRAINT DESCRIPTION:

The Surface Transportation Assistance Act of 1982 (STAA) was intended to standardize length and weight limitations for specified routes considered by the Federal Highway Administration to be interstates and federal-aid highways. The STAA has not yet been adopted uniformly by the states. In particular, several states have appealed designations of several routes as designated highways. Others have failed to adopt the use of certain rig and trailer combinations, i.e., twin trailers were banned in Connecticut. This document summarizes the status of these regulations on a state-by-state basis. Since 1983 changes may have occurred in the states and should be verified prior to shipment.

IMPACT ON TREATMENT:

Key word: routes.

Impact on treatment will be negligible except where routing and weight conditions will increase transportation costs. Allowable vehicle configurations may impact shipment size and weight.

RECORD No. : 65

DOCUMENT TYPE : Telecon

DOCUMENT NUMBER or CITATION:

DOCUMENT DATE : July 5, 1985

DOCUMENT TITLE : Telecon Between C. R. Palmer (S&L) and R. Swift (Chem. Nuclear) regarding Truck Weight Breakdowns

GOVERNMENTAL LEVEL : Private

ISSUING AGENCY : S&L - Chem. Nuclear

==========

PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

==========

CONSTRAINT DESCRIPTION:

For carrier weight distributions:

Tractor weight	13,000 lbs
Cask trailer or flatbed	15,000 lbs
Shielded van trailer	20,000 lbs

CNSI uses tractor trailer weight of 30,000 lbs for permitting purposes on cask shipments.

IMPACT ON TREATMENT:

Key word: overweight

gross vehicle weight limits. Overweight loadings for casks often increase shipment costs due to special permitting, routing and travel time restrictions.

Impact on processing is moderate to small.

RECORD No. : 66

DOCUMENT TYPE : ENVD Memo

DOCUMENT NUMBER or CITATION:

DOCUMENT DATE : April 25, 1985

DOCUMENT TITLE : TELECON with Earl Rotenkruger, Specialist of Nuclear and Hazardous Materials Division for Tri State Motor Transit Company

GOVERNMENTAL LEVEL : Private

ISSUING AGENCY : Sargent & Lundy

==========

PRINCPAL LLRW PHASE: Transportation TREATMENT TYPE:

SECONDARY LLRW PHASES (P, T, S, or D):

COMPACT REGION: STATE:

==========

CONSTRAINT DESCRIPTION:

General gross vehicle weight limit for 48 contiguous states 80,000 lbs

Distribution breakdown: Steering Axle - 12,000 lbs
Drive Axle - 34,000 lbs
Trailer Axle - 34,000 lbs

IMPACT ON TREATMENT:

Key words: weight limits, axle load

Impact on processing will be minimal. Weight distributions, such as placing liners at the far ends of trailers to meet dose limitations for drivers may be prevented based on this constraint.

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70. Brookhaven National Laboratory, Library Division, Bldg. 830, Nuclear Waste Management, Upton, NY 11973
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81. EG & G Idaho, Technical Library, Univ. Pl., P. O. Box 1625, Idaho Falls, ID 83415-1625
82. A. W. Fuller, EWS-305, United States Nuclear Regulatory Commission, Washington, DC 20555
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138. Westinghouse Materials Co. of Ohio, Attention: Reports Library, P.O. Box 398704, Cincinnati, OH 45239

139. Paul C. Williams, Vice President, Nuclear Systems Sales, Stock Equipment Company, 16490 Chillicothe Road, Chagrin Falls, OH 44022

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141-142. Technical Information Center, U.S. Department of Energy Oak Ridge, TN 37831