

ENCLOSURE

POOR ORIGINAL

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NOTE TO: Lake H. Barrett, Section Leader  
Operating Reactors Assessment Branch, DOL

FROM: Richard L. Bangart, Leader, Systems Analysis Section  
Effluent Treatment Systems Branch, DSI

SUBJECT: STORAGE OF LLW AT OPERATING REACTORS

We have reviewed the IE survey on LLW storage at operating reactors, tabulated the responses to questions 1 through 12, and have summarized some derived conclusions. This tabulation and summary are both enclosed. This input was prepared by V. Malafeew.

Original Signed By:  
Richard L. Bangart

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## LLW STORAGE SURVEY CONCLUSIONS

Of the 51 facilities surveyed:

- a. 19 (or 37%) have expanded the low-level waste storage facilities beyond that described in the FSAR.
- b. 36 (or 71%) are planning or considering increasing their waste storage capacity. 14 of these have already expanded it once (see item a above).
- c. 27 (or 53%) feel that their current solid waste processing equipment can meet the January 1981 burial criteria (regarding water content only).
  - of the remaining 24, 14 (or 58%) plan to go with mobile solid systems.
- d. 28 (or 55%) use or are considering using cement as a binding agent.
  - 12 (or 24%) use or are considering using DOW as a binding agent.
  - 8 (or 16%) use or are considering using UF as a binding agent.
- e. 28 (or 55%) feel that the waste presently in storage will meet the January 1981 burial criteria. (Note that 5 facilities did not have any waste presently in storage.)
- f. 37 (or 72%) are considering or planning to install volume reduction equipment, although 10 of these are looking only at compactors.
- g. No storage facility with capacity in excess of 5 years of waste generation is planned. All but two new storage facilities will be located inside the security fence. Only two plants will request prior NRC approval for the new storage facility; others believe their 50.59 review will conclude no prior NRC approval is necessary.

SUMMARY OF RESPONSES TO QUESTIONS

	<u>No. 1</u>	<u>No. 2</u>	<u>No. 3</u>	<u>No. 4</u>	<u>No. 5</u>	<u>No. 6</u>
	Expanded past FSAR Yes or No	% full now	Present Capability of mtg 1/81 Criteria of 0.5% free H <sub>2</sub> O or 1 gal/contain.	If No to No. 3, How do you plan to meet?	What binder will be used; UF, cement, Dow, asphalt?	Does waste in storage meet 1/81 burial criteria?
Arkansas	No	75	No	Mobile	Cement	No*, Yes
Beaver Valley	Yes	25	Yes	NA	Cement	Yes
Big Rock Point	No	65	Yes	NA	?	Yes
Browns Ferry	Yes	70	Yes	NA	NA	Yes
Brunswick	Yes*	0	No	Mobile	?	Yes
Calhoun	No	20	Yes	NA	Cement	Yes
Calvert Cliffs	No	NA	No*	?	Cement ?	NA
Conn Yankee	No	20	Yes*?	Mobile	Cement, Dow?	Yes*?
Cooper	No	0	Yes	NA	Cement	Yes
Crystal River	No	75	No	Mobile	Cement	No
Davis-Besse	Yes*	70	Yes	NA	UF	Yes
D. C. Cook	Yes	25	Yes	NA	Cement	No
Diablo Canyon	No	0	Yes	NA	Cement	NA
Dresden	Yes	10	Yes	NA	Cement, Dow	Yes
Duane Arnold	No	75	Yes	NA*	?	Yes
Farley	No	0	No	Mobile	UF, Cement	NA
Fitzpartick	No	75	No	New System	Cement, Dow	No
Ft. St. Vrain	No*	55*	Yes	NA	NA	Yes
GINNA	Yes*	0	No	?	Cement, ?	No*
Hatch	No	0	Yes	NA	Cement	Yes
Humboldt Bay	No	80	No	Mobile	? Dow	No
Indian Point 2	Yes*	-	Yes*?	Mobile	UF	NA
Indian Point 3	No	50	Yes*	NA	UF	Yes
Kewaunee	No	50	Yes	NA	Cement	Yes
LACBWR	Yes*	20	Yes	Mobile/Dow	Dow ?	Yes

\*More information on form

? - Under study

NA - Not applicable

<u>No. 7</u>	<u>No. 8</u>	<u>No. 9a</u>	<u>No. 9b</u>	<u>No. 9c</u>	<u>No. 9d</u>
If not, how do they plan on disposing?	Any future plans for increasing waste storage	Size	Type waste stored	Type Facility	Location of Facility
--	Yes	?	?	?	?
NA	Yes	3100 ft <sup>3</sup>	all	Concrete	new, inside fence
NA	No ?	NA	NA	NA	NA
NA	Yes	?	dry, dew.res.	Concrete	new, outside fence
NA	Yes	85,000 ft <sup>3</sup>	all	frame	new, outside fence
NA	Yes	?	all	Concrete	new, inside fence
NA	Yes	13,000 ft <sup>3</sup>	dry, dew.res.	Concrete	new, inside fence
NA	Yes	1100 ft <sup>3</sup>	dew.res., sol.res.	Concrete	new, inside fence
NA	No	NA	NA	NA	NA
Ship	Yes	?	all	?	?
NA	?*	50,000 ft <sup>3</sup>	dry, sol.res., sol.evap.bott.	?	new, outside fence
Ship	No	NA	NA	NA	NA
NA	No	NA	NA	NA	NA
NA	No	NA	NA	NA	NA
NA	Yes	?	?	?	?
NA	Yes	?	all	?	?
Ship	Yes	100,000 ft <sup>3</sup>	dry, sol.res., sol.evap.bott.	Concrete	new, inside fence
NA	No	NA	NA	NA	NA
Ship	?	NA	NA	NA	NA
NA	Yes	40,000 ft <sup>3</sup>	dry	Metal Frame	new, inside fence
Reprocess	?	NA	NA	NA	NA
NA	Yes*	?	?	?	?
NA	Yes	5 yr. accum.	dry, dew.res., sol.res.	Conc/steel	new, inside fence
NA	No	NA	NA	NA	NA
NA	Yes*	?	all	Concrete	ext. of exist. bldg.

<u>No. 9e</u>	<u>No. 9f</u>	<u>No. 10</u>	<u>No. 11</u> If yes What type?	<u>No. 12</u>
<u>Licensee</u> <u>Review</u> <u>Process</u>	<u>Schedule</u>	<u>Any Plans</u> <u>for</u> <u>Volume</u> <u>Reduction</u>	<u>incinerator</u> <u>compactor</u> <u>asphalt</u>	<u>Schedule</u> <u>for Vol.</u> <u>Reduction</u>
?	?	Yes	? Inc.	--
?	?	Yes	Comp.	?
NA	NA	No	NA	NA
50.59	?	Yes	Inc.	1985
50.59	09/80-01/81	?	?	1985
50.59	05/81-10/81	No	NA	NA
?	01/81-03/81	?	NA	NA
50.59	02/81-08/81	No	NA	NA
NA	NA	No	NA	NA
?	?	Yes	?	?
?	?	No	NA	NA
NA	NA	No	NA	NA
NA	NA	Yes	Comp./Inc.	NA
NA	NA	No	NA	NA
?	?	Yes	?	?
?	?	Yes	Asp/Fluid Bed Dryer	1984
?	81-82	No?	NA	NA
NA	NA	Yes	Comp.	1982
NA	NA	Yes	Comp.	?
50.59	01/81-05/81	Yes	Comp.	1980
NA	NA	No?	Comp.	NA
?	?	?	?	?
50.59	by 82	No	NA	NA
NA	NA	No	NA	NA
50.59	~ 81	No	NA	NA

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	Expanded past FSAR Yes or No	% full now	Present Capability of mtg 1/81 Criteria of 0.5% free H <sub>2</sub> O or 1 gal/contain.	If No to No. 3, How do you plan to meet?	What binder will be used; UF, cement, Dow, asphalt?	Does waste in storage meet 1/81 burial criteria?
Maine Yankee	Yes	70	?	Mobile	UF	?
McGuire	No	0	Yes	NA	Dow	Yes
Millstone	Yes	20	No	New System	Dow	Yes
Monticello	Yes*	10	No*	Mobile	?	Yes
Nine Mile Point	No	75	No	New System	Dow	No
N. Anna	No	100	No	Mobile	Cement	No
Oconee	Yes	0	No	Modification	UF	No
Oyster Creek	No	50	?	Modify	UF/Dow?	?
Palisades	Yes	25	Yes	NA	Asphalt	No*
Peach Bottom	No	90	?	New System	Cement	?
Pilgrim	No	40	Yes	NA	Cement ?	No
Point Beach	Yes	0	Yes	NA	Cement	Yes
Prairie Island	No*	15	Yes ?	Mobile	Cement	NA ?
Quad Cities	Yes	50	Yes	NA	Cement	Yes
Rancho Seco	No	30	Yes	NA	UF	Yes
Robinson	No	20	Yes	NA	Cement	Yes
Salem	No	0	Yes ?	Modify	Cement	No
San Onofre	No	20	No*	Mobile	Dow	Yes
Sequoyah	Yes	0	Yes	NA	UF	Yes
St. Lucie	No	10	Yes	NA	None	Yes
Surry	No	0	No	Mobile	Cement	NA
Trojan	Yes	20	No	?	Dow	Yes
Turkey Pt.	Yes	15	Yes	NA	Cement	Yes
Vermont Yankee	No	25	Yes	NA	? Dow/Cement	Yes* ?
Yankee Rowe	No	15*	Yes	Modification ?	Cement	Yes
Zion	Yes*	0	Yes*	NA	Cement	Yes

\*More information on form  
 ? - Under study  
 NA - Not applicable

<u>No. 7</u>	<u>No. 8</u>	<u>No. 9a</u>	<u>No. 9b</u>	<u>No. 9c</u>	<u>No. 9d</u>
<u>If not, how do they plan on disposing?</u>	<u>Any future plans for increasing waste storage</u>	<u>Size</u>	<u>Type waste stored</u>	<u>Type Facility</u>	<u>Location of Facility</u>
No plans	Yes	1 yr. accum.	all	Conc/bunker	new, inside fence
NA	Yes	?	dew.res., sol.res.	Concrete	new, inside fence
NA	Yes	105,000 ft <sup>3</sup>	dew.res., sol.res., sol.evap.bott.	Concrete	new, new fence
NA	Yes*	?	?	?	?
Reprocess	Yes	90,000 ft <sup>3</sup>	dry, sol.res., sol.evap.bott.	Concrete	new, inside fence
Reprocess/Ship	Yes	50,000 ft <sup>3</sup>	all	Concrete	new, inside fence
Reprocess	Yes	?	all	?	?
?	?	NA	NA	NA	NA
Ship/Reprocess	Yes*	100,000 ft <sup>3</sup>	all	frame	new, outside fence
Reprocess	Yes	2 yrs. accum.	sol.res.	Conc/frame	new, inside fence
Reprocess	?	NA	NA	NA	NA
NA	No	NA	NA	NA	NA
NA ?	No	NA	NA	NA	NA
NA	No	NA	NA	NA	NA
NA	Yes	?	dry	frame(open, pad)	new, inside fence
NA	Yes	20,000 ft <sup>3</sup>	evap.bott.	Concrete	new, inside fence
Reprocess	Yes	1000 drms&50 LSA bxs	all	Concrete	new, inside fence
NA	Yes	?	?	?	?
NA	Yes	90,000 ft <sup>3</sup>	all	Concrete	new, inside fence
NA	Yes	120,000 ft <sup>3</sup>	dry	Butler bldg.	new, inside fence
NA	Yes	100,000 ft <sup>3</sup>	dry	frame	new, outside fence
NA	No	NA	NA	NA	NA
NA	Yes	20,000 ft <sup>3</sup>	dry	frame	new bldg.
NA	No	NA	NA	NA	NA
NA	No	NA	NA	NA	NA
NA	No*	NA	NA	NA	NA

<u>No. 9e</u>	<u>No. 9f</u>	<u>No. 10</u>	<u>No. 11</u> If yes	<u>No. 12</u>
Licensee Review Process	Schedule	Any Plans for Volume Reduction	What type? incinerator compactor asphalt	Schedule for Vol. Reduction
50.59	?	?	Inc.	NA
lic. amend.	08/80-04/81	Yes	?	?
50.59	?	?	NA	--
?	?	Yes	?	?
50.59	05/80-03/82	Yes	Inc/Evap.	?
?	?	Yes	Inc.	?
?	?	?	?	?
NA	NA	No	--	NA
?	?	Yes	Asphalt	1981
50.59	03/81-06/81	Yes	Asphalt	1983
NA	NA	Yes	Comp.	?
NA	NA	?	NA	NA
NA	NA	No	NA	NA
NA	NA	?	Asphalt	NA
?	?	Yes*	Comp.	1981
?	06/81-09/81	Yes	Comp/Evap.	1981
50.59	81-82	Yes	Inc.	?
?	?	Yes	Comp.	1980
lic. amend.	03/80-12/80	Yes	Comp.	NA
?	12/80-03/81	Yes	Comp.	1981
50.59	08/80-11/80	Yes	Inc/Comp.	NA
NA	NA	No	NA	NA
?	01/81-06/81	No	NA	NA
NA	NA	Yes*?	Inc.	1982
NA	NA	Yes*	Inc.(exist.)	NA
NA	NA	Yes	Osmosis/Evap.	1982