

OCEAN DUMPING OF RADIOACTIVE WASTE OFF THE PACIFIC COAST

HEARING
BEFORE A
SUBCOMMITTEE OF THE
COMMITTEE ON
GOVERNMENT OPERATIONS
HOUSE OF REPRESENTATIVES
NINETY-SIXTH CONGRESS
SECOND SESSION

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COMMITTEE TO BRIDGE THE GAP

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October 7, 1980

STATEMENT BY DANIEL HIRSCH, SPOKESPERSON FOR THE COMMITTEE TO BRIDGE THE GAP.

ON RELEASING LIST OF 50 OCEAN NUCLEAR WASTE DUMPS

"It has been a practice on the Pacific Coast to dispose of low-level waste by jettisoning containers of it onto the bottom of the sea in designated disposal areas. There is no evidence that this disposal practice has resulted in any inimical effect upon the environment; but neither is there evidence that harmful effects cannot eventually result from it.

"The concern here is not with any magnitudes of disposal already undertaken, but rather with understanding the implications of the continuing and increasing use of the oceans as a receptacle for disposal. History is replete with cases in which unrestricted pollution of various kinds, rapidly developing from innocuous beginnings, has subtly damaged or destroyed resources before understanding and controls could be developed." [emphasis added]

National Academy of Sciences, 1962¹

Today the Committee to Bridge the Gap, a Los Angeles-based environmental research organization, is releasing a list of 50 former U.S. ocean dumpsites for nuclear wastes, including one in the Santa Cruz Basin just 33 miles off the Southern California coast. We believe this list to be far more extensive than that available from any single federal agency; nonetheless, the information we have pieced together in a year's worth of searching through old records is vastly incomplete, indicating a major need for a responsible agency to fill in the missing gaps in information and undertake serious monitoring of the sites to determine if there is any hazard posed by the radioactive wastes that government officials admit are leaching out of the containers in which they were dumped.² It seems incomprehensible that an independent public interest group like Bridge the Gap has to piece together this information rather than a responsible federal agency.

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As an EPA official wrote us, there could be substantial error in estimates of how much radioactivity was actually dumped, because, as she put it⁷,

effort at the time of the dumping was not put into extremely accurate measurement and recording of wastes, as they were seen as just that - something to throw away. In addition, many existing records, estimates though they were, were periodically destroyed with other file records as they attained twenty-five years of age.

The guesstimate nature of the locations and size of the dumps is confirmed in another document we uncovered from the old AEC⁸:

All of the other numbers are judgmental estimates. The categorized number of drums are probably close to actuality whereas the estimated curie content [a measure of the amount of radioactivity contained] could be off as much as a factor of 10.

Our own research indicates that the error could be even greater.

Thus, when we are told, for example, not to worry about the Santa Cruz Channel site because it is smaller than the more famous Farallon Islands site (about 1/10 the number of 55-gallon concrete-weighted drums dumped and even a smaller percentage of radioactivity estimated), one cannot be very confident that that is correct. A case in point: a spokesperson for the NRC said recently⁹ that there was nothing to worry about regarding the Santa Cruz Channel site because no radioactive substances of the nature of plutonium were dumped there. Yet the Atomics International document mentioned above indicates that plutonium and mixed fission products were indeed dumped there¹⁰; this is confirmed by other documents. No one in any government agency seems to know what is really going on with these dumps; and what they know, they seem to be reluctant to disclose to the public and the media.

At one of the East Coast dumpsites, 150 miles or so from the Delaware-Maryland line, the U.S. Navy dumped an entire nuclear reactor vessel--described by a reporter for the Boston Globe as "believed to be the largest,

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Year	Approx. Location	Depth	# of Tack-ages	Approx. Curlew	Common Name of Site	Blind to Land	Source for Data	Years when were collected
1951-58	36°30'N, 76°13'W	97	.1		Riddoan			
1959-60	36°30'N, 76°13'W	22	.1		Riddoan			

Year	Approx. Location	Depth	# of Tack-ages	Approx. Curlew	Common Name of Site	Blind to Land	Source for Data	Years when were collected
1951-58	36°30'N, 76°13'W	97	.1		Riddoan			
1959-60	36°30'N, 76°13'W	22	.1		Riddoan			
1961-62	36°30'N, 76°13'W	10	.1		Riddoan			
1963-64	36°30'N, 76°13'W	10	.1		Riddoan			
1965-66	36°30'N, 76°13'W	10	.1		Riddoan			
1967-68	36°30'N, 76°13'W	10	.1		Riddoan			
1969-70	36°30'N, 76°13'W	10	.1		Riddoan			
1971-72	36°30'N, 76°13'W	10	.1		Riddoan			
1973-74	36°30'N, 76°13'W	10	.1		Riddoan			
1975-76	36°30'N, 76°13'W	10	.1		Riddoan			
1977-78	36°30'N, 76°13'W	10	.1		Riddoan			
1979-80	36°30'N, 76°13'W	10	.1		Riddoan			
1981-82	36°30'N, 76°13'W	10	.1		Riddoan			
1983-84	36°30'N, 76°13'W	10	.1		Riddoan			
1985-86	36°30'N, 76°13'W	10	.1		Riddoan			
1987-88	36°30'N, 76°13'W	10	.1		Riddoan			
1989-90	36°30'N, 76°13'W	10	.1		Riddoan			
1991-92	36°30'N, 76°13'W	10	.1		Riddoan			
1993-94	36°30'N, 76°13'W	10	.1		Riddoan			
1995-96	36°30'N, 76°13'W	10	.1		Riddoan			
1997-98	36°30'N, 76°13'W	10	.1		Riddoan			
1999-00	36°30'N, 76°13'W	10	.1		Riddoan			
2001-02	36°30'N, 76°13'W	10	.1		Riddoan			
2003-04	36°30'N, 76°13'W	10	.1		Riddoan			
2005-06	36°30'N, 76°13'W	10	.1		Riddoan			
2007-08	36°30'N, 76°13'W	10	.1		Riddoan			
2009-10	36°30'N, 76°13'W	10	.1		Riddoan			
2011-12	36°30'N, 76°13'W	10	.1		Riddoan			
2013-14	36°30'N, 76°13'W	10	.1		Riddoan			
2015-16	36°30'N, 76°13'W	10	.1		Riddoan			
2017-18	36°30'N, 76°13'W	10	.1		Riddoan			
2019-20	36°30'N, 76°13'W	10	.1		Riddoan			

ATLANTIC OCEAN

Year used	Approximate Location	Depth	# of Pack-ages	Approx. Curlew eggs	Common Name of Site	Miles to Land	Source for Data	Years when were collected
1951-58	42°25'N 70°35'W (18)	62	4,000	2,440	Massachusetts Bay	70	185	1959
1951-56	41°33'N 65°30'W (20)	1,100	1,100	4,000	Sandy Hook	20	6	1976
1959-62	38°30'N 72°06'W (15)	1,530	14,300	41,400	Sandy Hook	22	203	1976
1957-59	37°50'N 70°35'W (6)	2077	14,500	2,100	Sandy Hook	20	203	1976
1951-62	36°55'N 74°23'W (17)	1,445	630	60.5	Cape Henry Virginia	20	105	1976
1959-60	36°44'N 65°00'W (2)	220	456			5	5	
1959-60	36°50'N 74°23'W (19)	204	204	204.5		5	5	
1951-58	35°30'N 74°13'W (1)	1,850	97	.1	Midcean	6	5	
1959-60	35°30'N 74°13'W (2)	22	.1	Midcean		5	5	

Atlantic Ocean

Year used	Approximate Location	Depth	# of Pack-ages	Approx. Curlew eggs	Common Name of Site	Miles to Land	Source for Data	Years when were collected
1951-58	35°30'N 65°00'W (15)	2000			Central Atlantic	800	5	
1951-58	35°30'N 65°00'W (15)	2000			Central Atlantic	800	5	
1951-58	35°30'N 65°33'W (15)	1305			Cape Cod Mass.	110	5	
1951-58	30°41'N 65°00'W (6)	2000			Central Atlantic	800	5	
1951-58	35°30'N 65°00'W (15)	2000			Central Atlantic	800	5	
1951-58	35°30'N 65°00'W (15)	2000			Central Atlantic	800	5	

Yankee used	Approximate Locations	Depth in fms	# of Packs used	Approx Current	Given Name of Ship	Miles to Land	Source for Data	Year of Data
	32°30'N 79°05'W	1806			Charleston, S.C.	100	A	
	31°53'N 76°28'W	1350			Savannah, Ga.	270	"	
	31°33'N 76°12'W	1550			"	235	"	
	31°12'N 76°30'W	1660			"	220	"	
	31°27'N 81°10'W	110			Sapelo Is., Ga.		"	
	31°22'N 76°48'W	1150			Savannah, Ga.	215	"	
	31°10'N 76°31'W	1350			Jacksonville, Fla.	253	"	
	31°05'N 76°35'W	1600			"	250	"	
	29°38'N 77°27'W	695			St. Augustine, Fla.	200	"	

Gulf of Mexico

Approximate Locations	Depth in fms	# of Packs used	Approx Current	Given Name of Ship	Miles to Land	Source for Data	Year of Data
31°15'N 80°31'W	1055			South Pass River	108	"	
31°05'N 80°31'W							

31° 27' N 76° 48' W	1350	Savannah, Ga.	213	"
31° 10' N 76° 31' W	1350	Jacksonville, Fla.	257	"
31° 05' N 76° 35' W	1600	"	250	"
29° 16' N 77° 27' W	695	St. Augustine, Fla.	200	"

Gulf of Mexico		Latitude		Longitude		Depth		F. of. Area		Specimen Name of Site		Lab. No.	
Lat.	Long.	Lat.	Long.	Lat.	Long.	Lat.	Long.	Lat.	Long.	Lat.	Long.	Lat.	Long.
27° 14' N	89° 13' W	27° 14' N	89° 13' W	1035						South Pass Bluff, La.	109	4	
27° 50' N	85° 17' W	27° 50' N	85° 17' W	1795						Cape Bogues, Fla.	170	4	

ADDENDUM

Since this list of nuclear waste dumpsites in the ocean was first compiled, several additional sites have been called to our attention.

Four sites from a May 13, 1958, agreement between State of California official agencies and firms licensed by the AEC to dispose of radioactive wastes at sea:

- 46.) $39^{\circ} 30'N$, $124^{\circ} 40'W$ - a point 88 miles west of Fort Bragg, California
- 47.) $37^{\circ} 40'N$, $124^{\circ} 50'W$ - a point 58 miles west of Southeast Farallon Island
- 48.) $36^{\circ} 1'$, $124^{\circ} 1'$ - a point 103 miles west-southwest of Point Bar, California.
- 49.) $34^{\circ} 30'N$, $122^{\circ} 50'W$ - a point 106 miles west of Point Arguello, California.

50.)

In addition, we have seen a recent press item indicating the EPA's Robert Dyer has located through a search of the records 4 disposal sites off the Canadian coast that were used by companies in the Pacific Northwest. As our chart only indicates three such sites, it would appear that a fourth site not included in our original chart exists. (Note that we do not have exact coordinates for this site, so the position on the enclosed map is not precise.)

If one considers the three subsites in the immediate vicinity of the Farallon Islands as three sites, that brings the total number of radioactive waste dumpsites in the ocean that we have been able to identify to 50.



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been called to our attention.

It between State of California
the AEC to dispose of radioactive

as west of Fort Bragg, California

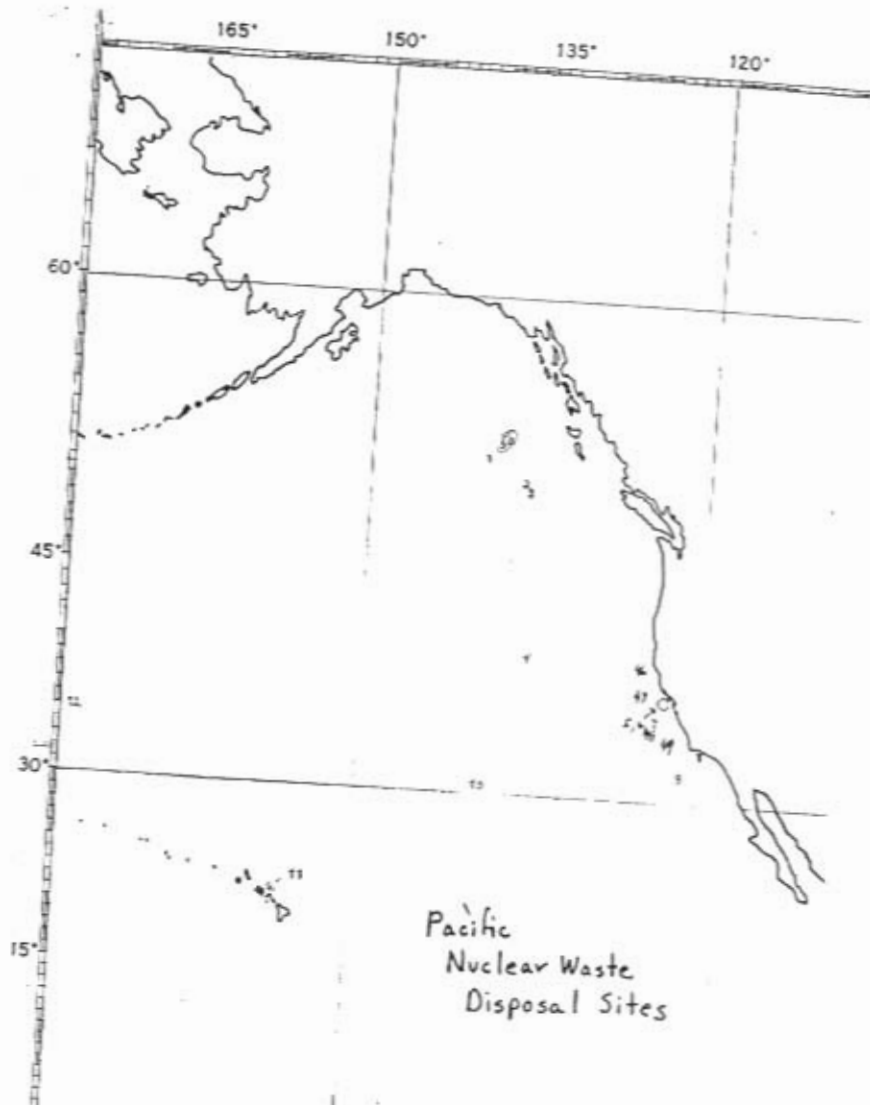
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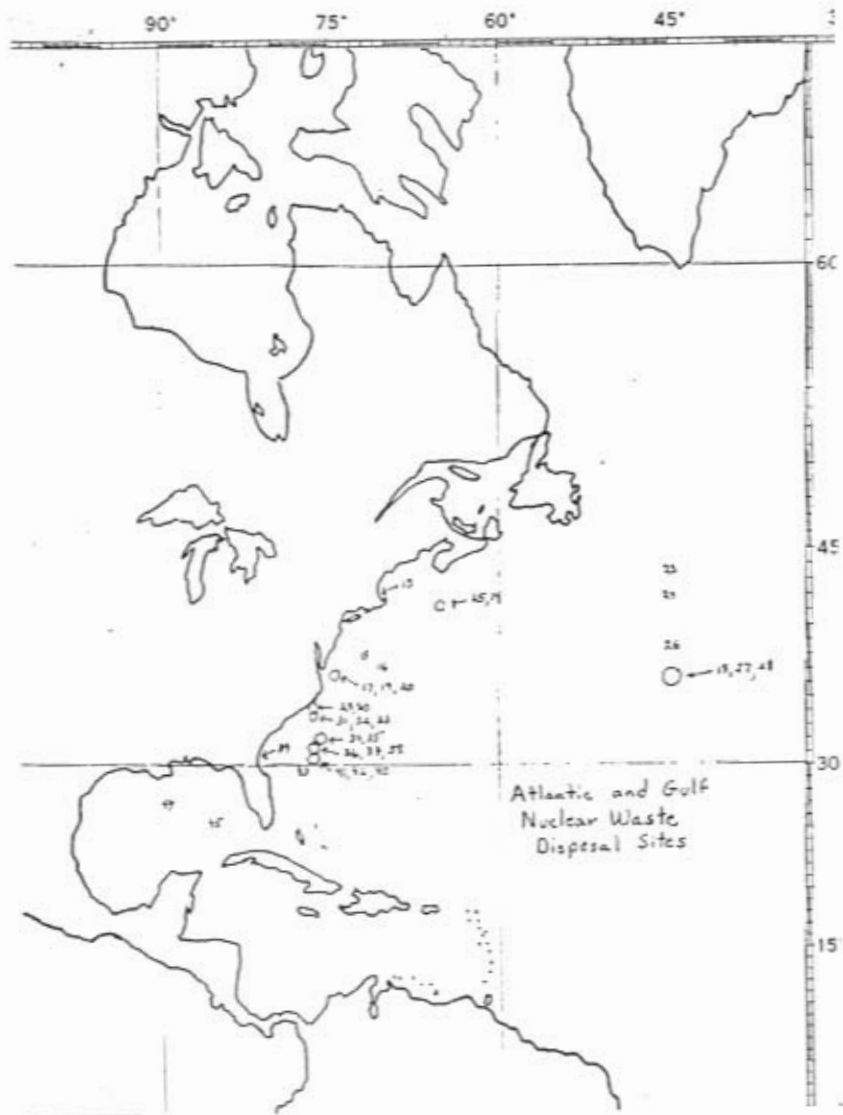
as west-southwest of Point Sur, California.

as west of Point Arguello, California.

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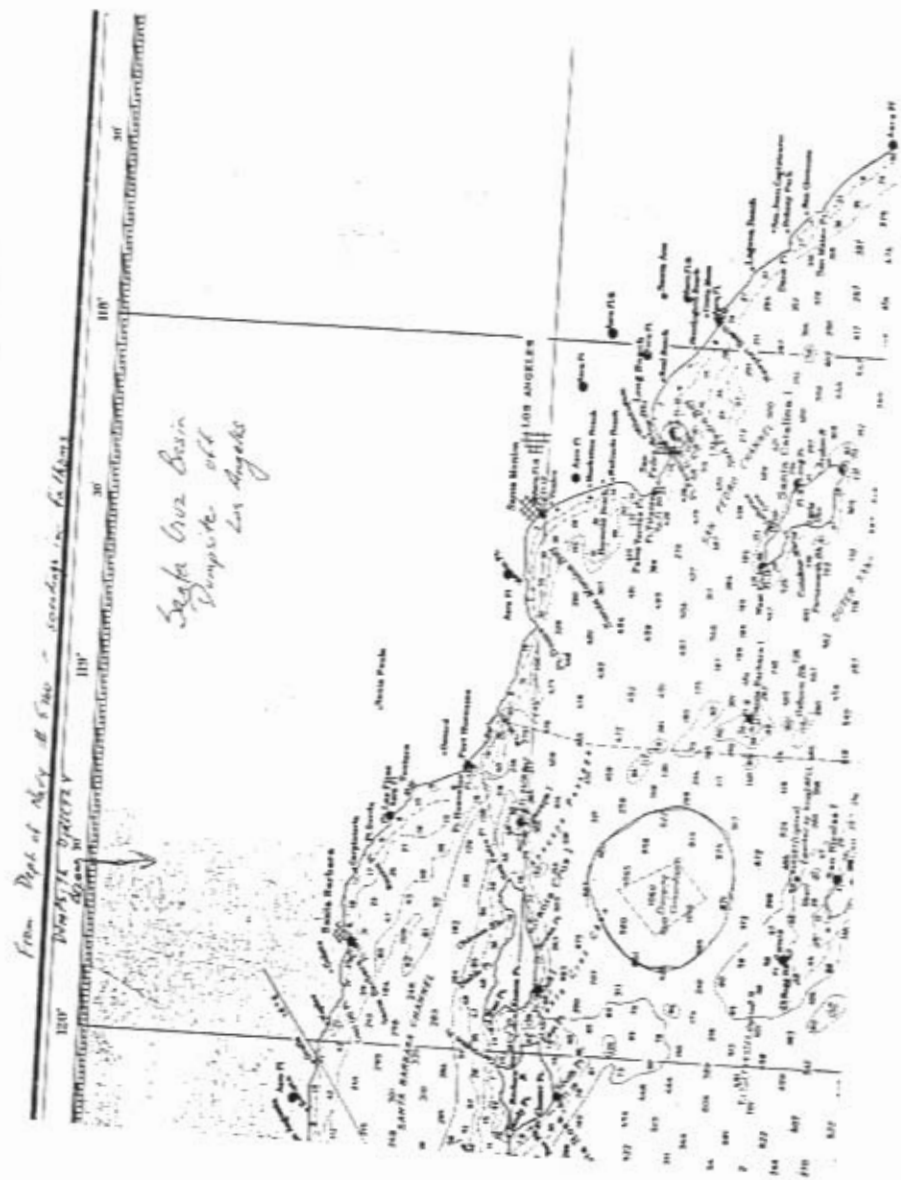
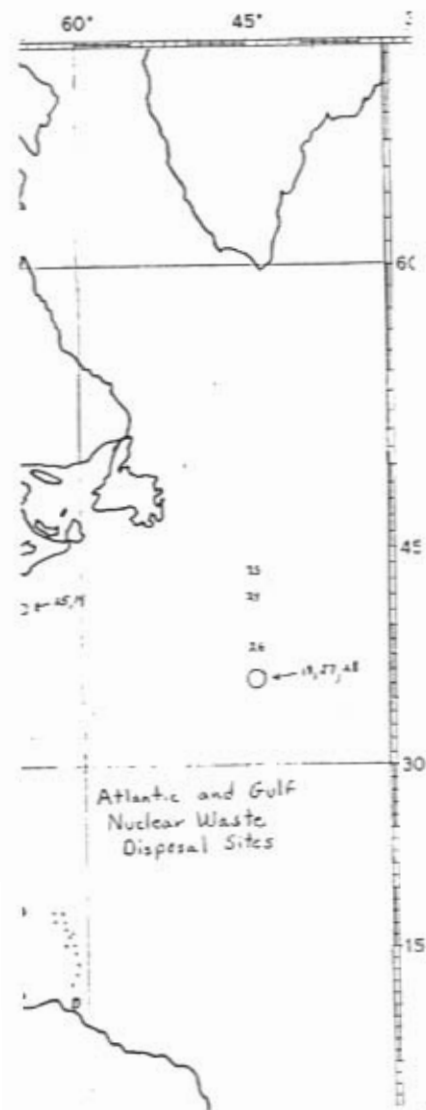
the immediate vicinity of the Farallon
total number of radioactive waste
able to identify to 20.





From Dept of Navy & Navy - Atlantic & Gulf
 120° 110° 100° 90° 80° 70° 60° 50° 40° 30° 20° 10° 0° 10° 20° 30° 40° 50° 60° 70° 80° 90° 100° 110° 120°

Large Area Basin
 Vampires old
 Long Island



SOURCES

The number in front of the listed reports will coincide with the numbers in the "sources for data" column on the ocean disposal location charts.

1. Congress, House Committee on Merchant Marine and Fisheries hearing on Ocean Waste the Dumping of Radioactive Waste into the Oceans 1971
2. Environmental Surveys of Two Deepsea Radioactive Waste Disposal Sites Using Submersibles, R.S. Dyer- U.S. Environmental Protection Agency, 1971
3. Evaluation of Alternative Methods For the Disposal of Low-Level Radioactive Wastes, NUREG/CRO688, 1979, (NRC)
4. Ocean Disposal of Barge Delivered Liquid and Solid Wastes From U.S. Coastal Cities, David Smith- U.S. Environmental Protection Agency, 1971
5. Radioactivity in the Marine Environment, National Academy of Sciences, 1971
6. United States' Sea Disposal Operations, A Summary to December 1956 WASH 734, Arnold B. Joseph- U.S. Atomic Energy Commission 1956
7. Submersible Inspection of Deep Ocean Waste Disposal Sites Off Southern California, Robert F. Brown, Plessey Environmental Systems, 1972

Answer

The compiling of this was unanswered. Initially it about the sites in question been joined by the problem informants or sources. That that we have been unable to data we site is open to question.

For both the Atlantic certain discrepancies in that need to be explored in charts we have prepared we charts.

ATLANTIC

- A. At the 1530 fathom site exact figure for the number chart but are ourselves unable to know more about the location major portion of these our
- B. The WASH 734 report lists
- C. The National Academy of Sciences Commission reports differ fathom site off Sandy Hook but comes up with a different binning the figures from the

Appendix to Charts

The compiling of this information has left many questions unanswered. Initially it was difficult finding anyone who knew about the sites in question. This problem remains but has been joined by the problems posed by inadequate and conflicting informants or sources. The open boxes on the charts are areas that we have been unable to find information about but even that data we site is open to question.

For both the Atlantic and the Pacific oceans we have found certain discrepancies in the available data and a number of areas that need to be explored in more detail. In relationship to the charts we have prepared we have had to omit some data from the charts.

ATLANTIC

- A. At the 1530 fathom site there is a dispute concerning the exact figure for the number of curies. We supplied both on our chart but are ourselves unsure about the totals and would like to know more about the Seawolf reactor vessel that supplied a major portion of these curies.
- B. The WASH 734 report lists two sites that no other report lists
- C. The National Academy of Sciences and the Nuclear Regulatory Commission reports differ on the curie counts for the 2077 fathom site off Sandy Hook. The NAS report combines both sites but comes up with a different figure than one would from combining the figures from the sites as listed in the NRC report.

Appendix cont.Pacific ocean

- A. For the sites listed as being near Cape Scott Canada there is some question about the totals for the number of packages and for the curie counts. The NAS report 75 on the sources page lists a total of 391 for packages and a total of 97.4 for curies for an area between $40^{\circ}07'N$ $135^{\circ}24'W$ and $54^{\circ}10'N$ $131^{\circ}09'W$. This listing encompasses the Cape Mendocino California site as well as those listed as Canadian. The NAS report also shows the sites as being used from 1946 to 1966. This is later than most sites but it doesn't specify which of the sites out of this broad area were used or when they were used.
- B. There are a number of different locations given for the Farallons sites and for the number of packages and total curie counts.
The NAS report lists these figures:
1946-65 $37^{\circ}39'N$ $123^{\circ}26'W$ 47,541 packages 14,468.3 curies
1966 $37^{\circ}12'N$ $123^{\circ}55'W$ 3 " 15.3 "
The Congressional testimony cited these boundaries for the Farallons:
 $37^{\circ}38'N$ $123^{\circ}18'W$ & $37^{\circ}38'N$ $123^{\circ}30'W$
 $37^{\circ}43'N$ $123^{\circ}24'W$ & $37^{\circ}43'N$ $123^{\circ}30'W$
- C. The E.P.A. report by Bob Dyer doesn't complete the location reference for the Farallons subsite B. This is carried over to the NRC study.
- D. A third Farallons site is discussed in WASH 734 as having been used as the first site there in 1946 but used only for "three tugloads" of waste.
- E. The curie figures and package counts for the Santa Cruz Basin site differ in two reports.
NAS places the package count at 164 and curies at 47.9. This is clarified by Plessey: the 164 containers were part of a 1961 experiment by the AEC involving approximately that curie

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count and that exact number of containers. Prior to that experiment an estimated 2,950 containers containing 60 curies of activity had been dumped at the Santa Cruz Basin. The two combine for the over 3,000 containers and 100 curies.

- F. WASH 734 mentions that a few drums of waste went out of the University of Washington and I speculate that this might be the source for the wastes off Cape Scott Canada. No other mention is found concerning the source of wastes in the Pacific Northwest.
- G. WASH 734 also discusses a practice known as "shortdumping." This means wastes would be tossed out early due to inclement weather which meant that the boats transporting the wastes to the dumping grounds were unable to make the complete trip.
- H. The NRC report states that there were 5 sites in the Pacific, 11 in the Atlantic and 1 in the Gulf. We have 10 in the Pacific 11 in the Atlantic and 2 in the Gulf. (We have counted the three Farallons subsites--numbered 5-7 on chart--as one site). There are thus 43 sites that we know of.
- I. EPA's Robert Dyer has suggested that some of the sites on the chart may be of dumpsites that were identified for use or approved for use but nonetheless never used; he was, however, unable to identify which those were likely to be. It is quite possible that among the 43 are sites that were never used, but that is something that should be cleared up definitively. Each document we have cited gave the clear impression they were listing radioactive waste disposal sites that had been used.
- J. The column marked "approximate curies" is a measure of how much radioactivity was contained in the material dumped. A curie corresponds to the radioactivity of one gram of fresh radium; it represents the quantity of a radioactive isotope which undergoes 37 billion nuclear disintegrations per second.

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