



## **SOUTHWEST RESEARCH AND INFORMATION CENTER**

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September 30, 2019

Mr. Bobby St. John  
PO Box 2078  
Carlsbad, NM 88220

via email: [infocntr@wipp.ws](mailto:infocntr@wipp.ws)

RE: Draft CBFO Strategic Plan - DOE/CBFO-19-3605, Revision 0,

Dear Bobby,

Southwest Research and Information Center (SRIC) appreciates the issuance of the Draft Strategic Plan (DSP) for Public Comment, including the public meetings on September 10 and 12, 2019, and the public comment period. We look forward to a final Strategic Plan that addresses these comments and others that you receive. The Plan is an important document in describing how the Department of Energy (DOE) intends to operate WIPP and comply with legal requirements during the next five years and throughout the facility's lifetime. However, the DSP is inadequate in major respects, and the final Plan must be significantly revised, as described in the following comments.

1. The DSP violates major requirements of the WIPP Land Withdrawal Act, DOE-New Mexico Consultation and Cooperation Agreement, and WIPP Permit.

A. WIPP's Limited Mission.

The WIPP Land Withdrawal Act (LWA), Consultation and Cooperation (C&C) Agreement, and WIPP Permit are based on the fact that WIPP is the first of multiple geologic repositories and has a limited mission. The original WIPP authorization (Public Law 96-164, § 213(a)) states that WIPP is "to demonstrate the safe disposal of radioactive waste resulting from the defense activities and programs of the United States exempted from regulation by the Nuclear Regulatory Commission." The law specifically designates WIPP as a "pilot plant" and to "demonstrate the safe disposal." Both of those designations clearly indicate that WIPP is not the sole disposal site for all TRU waste. Congress has maintained those legal requirements and constraints for the last 40 years.

Additionally, Congress has not changed the authorization in subsequent nuclear waste laws. In 1982, Congress passed the Nuclear Waste Policy Act (NWPA) of 1982 (Public Law 97-425) with the primary purpose of developing other repositories. Congress amended the NWPA in 1987 to designate a single high-level waste and spent fuel repository, and discussed whether that facility should be WIPP, but again determined that WIPP would not be that facility, and instead designated Yucca Mountain, Nevada, as the repository.

The 1979 Authorization provided that the Secretary of Energy “shall seek to enter into a written agreement with the appropriate officials of the State of New Mexico, as provided by the laws of the State of New Mexico, not later than September 30, 1980, setting forth the procedures under which the consultation and cooperation required by paragraph (1) shall be carried out.” § 213(b). The C&C Agreement was signed on July 1, 1981. Article VI describes the limited mission for WIPP, as provided in the Authorization.

Thus, the Congress, the DOE, the State of New Mexico, and the public all understand that there are to be multiple geologic repositories, including for TRU waste, as there are no plans to stop making TRU waste in 2050 or thereafter. To the contrary, the DSP describes WIPP as “the only repository for defense-related TRU waste.” at 10. Consequently, DOE appears to propose a “WIPP Forever” plan that includes no further repositories, nor improved on-site storage at other sites.

*Revisions needed:* The Plan must include a discussion of WIPP’s limited mission and its relation to requirements and plans for other repositories. Also, the Mission on page 7 should be revised to be: “Provide safe, compliant, and efficient characterization, transportation, and disposal of defense TRU waste as the first geologic repository.” The Vision on page 7 should be revised to be: “Enable a nuclear weapons future by providing safe and environmentally-responsible defense TRU waste management.” The statement on page 10 should be revised to indicate that WIPP is the first repository for defense-related TRU waste and describe how DOE intends to identify sites and operate additional defense-related TRU repositories.

#### B. Capacity Limit.

It is uncontested that the LWA limits the facility to up to 6,200,000 cubic feet (175,564 cubic meters) of defense transuranic (TRU) waste. LWA § 7(a)(3), DSP at 9 & 21, C&C Agreement at Article VI.E, WIPP Permit at Attachment B and other provisions.

It is contested as to how that volume limit is calculated, as documented in the WIPP Permit Modification approved by the New Mexico Environment Department (NMED) on December 21, 2018 and on appeal in the New Mexico Court of Appeals Case No. A-1-CA-37894. SRIC believes that the law requires the historic practice of calculating the waste limit based on outer container volume. The new DOE second way of calculating is by inner container volume, which has the purpose of allowing approximately 30 percent more waste than the legal limit. For example, as of September 21, 2019, the volume of waste emplaced by outer container is 97,002.11 cubic meters and by inner container is 68,677.57 cubic meters, or 29.2 percent less.

<https://www.wipp.energy.gov/general/GenerateWippStatusReport.pdf>

The DSP metric in Goals 2 and 4 is numbers of shipments, not waste volume, which is the appropriate legal metric. However, the shipment numbers provided in the DSP would result in waste volume that exceeds the capacity limit. The amount of waste as of September 21, 2019 is the result of 12,589 shipments. Thus, by outer container volume, shipments average 7.71 cubic meters and by inner container volume, shipments average 5.46 cubic meters.

The DSP estimates that in Fiscal Years 2020-2024 WIPP will receive 2,436 shipments. at 18. Those shipments would be expected to bring 18,781 cubic meters of waste based on outer container volume. The plan for 616 shipments per year from FY 2025 to FY 2050 totals 16,016

shipments. At outer container average volume of 7.71 cubic meters, those shipments bring 123,483 cubic meters of waste. Adding those amounts, by FY 2050, WIPP would have 239,266 cubic meters [97,002 + 18,781 + 123,483] based on outer containers, or 63,702 cubic meters and 26.6 percent more waste than allowed by the LWA and C&C Agreement.

*Revisions needed:* The Plan must include the appropriate metric of volumes of waste based on outer and inner container volumes. The Plan must clearly show how those waste volumes comply (or not) with the LWA, C&C Agreement, and the WIPP Permit.

### C. Operational Lifetime.

The DSP correctly states that WIPP's originally planned operational lifetime was 25 years. at 8. Since WIPP opened in 1999, the Permit includes numerous provisions related to the 25-year operational lifetime and that the Disposal Phase ends by 2024. Furthermore, the Nuclear Waste Partnership (NWP) contract, signed on April 20, 2012, provides: "...the Contractor is expected to facilitate all activities to ship and receive waste to complete the disposition of 90 percent of legacy transuranic waste by the end of fiscal 2015."

[https://wipp.energy.gov/library/foia/NWP\\_M&OContract/Section\\_C.pdf](https://wipp.energy.gov/library/foia/NWP_M&OContract/Section_C.pdf) at C-3.

However, the DSP states that WIPP's operational lifetime must be until at least 2050, which is "the estimated duration needed to emplace the existing defense TRU waste inventory." at 5. The fact that the 2014 radiation release prevented waste shipments for three years and is expected to result in reduced waste emplacement for several more years in no way adequately explains the more than doubling of the facility's operational lifetime.

While not explained in the DSP, such a "WIPP Forever" extension of the lifetime apparently has multiple causes. One important cause is not using all available space in Panels 1, 3, 4, 5, and 6. That WIPP's underground footprint would not accommodate 175,564 cubic meters of waste has been known since 2003 when Panel 1 was closed after using 58.32 percent of the permitted capacity. For many years, SRIC has publicly noted that the permittees' management practices, especially failing to use all of the disposal capacity of each WIPP panel, meant that the actual capacity of the eight (or ten) panels is much less than 6.2 million cubic feet. In Panels 1 through 6, the capacity shortfall is 20,761 cubic meters of contact-handled (CH) waste and 710 cubic meters of remote-handled (RH) waste. Thus, 81.3 percent of CH capacity was used and 46.82 percent of RH capacity. See Attachment 1.

In 2013 the DOE Inspector General (IG) reported:

"We found that while EM had made progress in meeting its operational disposal goals, it was not on track to meet its goal to dispose of 90 percent of the Department's legacy TRU waste by the end of FY 2015. In particular, EM faces a number of challenges in meeting its planned 90 percent waste disposal goal by 2015. Additionally, without further modifications to the repository or existing waste disposal practices, WIPP may not have capacity for disposal of the current RH inventory."

<https://www.energy.gov/sites/prod/files/2013/05/f1/OAS-L-13-09.pdf> at 1-2.

In 2017, the Government Accountability Office (GAO) reported:

“DOE does not have sufficient space at WIPP to dispose of all defense TRU waste....

- DOE’s TRU waste management plan, which includes planning for WIPP, covers a 5-year period and does not address possible expansion. Moreover, DOE’s TRU waste management plan does not include a schedule for expanding DOE’s disposal space before existing space is full.
- Expanding WIPP’s disposal space will require regulatory approval that is expected to take several years. However, DOE modeling that is needed to begin the regulatory approval process is not expected to be ready until 2024.”

<https://www.gao.gov/assets/690/686928.pdf> at inside cover.

Another likely cause of the extended lifetime is DOE’s desire to expand the amounts and types of waste beyond legacy defense TRU waste, which SRIC and many others oppose, including:

- 34 metric tons or more of surplus plutonium, as a result of the cancellation of the Mixed Oxide Fuel Facility
- Renamed high-level, excluded waste
- Commercial Greater-Than-Class C waste
- Commercial waste from the West Valley, New York site
- 10,000 metric tons of elemental mercury for long-term surface storage

Additional likely causes are the lack of another repository and the inability of storage sites to characterize and ship wastes to meet the 25-year timeframe, among others.

Regardless of DOE’s plans, the WIPP Permit provides that for good cause the NMED can order facility closure at any date.

*Revisions needed:* The Plan must include an explanation of the reasons that the WIPP operational lifetime is planned to be more than doubled. The Plan should include which of the proposed additional wastes are to be disposed by 2050. The Plan should also clearly state that the WIPP Permit allows disposal operations to be halted for good cause well before 2050.

D. New underground footprint and additional infrastructure.

For more than four decades, the WIPP underground design has been based on the eight panels, plus Panels 9 and 10, if needed. That footprint included the four existing shafts and the Waste Handling Building. The DSP apparently estimates that only the eight panels will be filled through FY 2024, though it does not include the volume of wastes that those panels will hold by 2024. The Future of WIPP Conceptual Draft diagram on page 17 clearly indicates the current footprint is inadequate and will be expanded, as does some of the infrastructure description.

But the DSP does not describe the new underground footprint, including new panels and rooms. The DSP does not explain what additional infrastructure is needed for the proposed 2050 operational timeframe. Nor has DOE issued NEPA document(s) to discuss that proposed operational timeframe, new underground footprint and infrastructure and the impacts of such operations, nor the reasonable alternatives to such operations, among other legal requirements.

Revisions needed: The Plan must include what NEPA document(s) and decisions that will be issued during the 5-year timeframe. The Plan also must explain how the infrastructure improvements relate to the future larger underground footprint, which should be much more fully described, including proposed panels and rooms and other additional infrastructure.

2. The DSP does not discuss all of the proposed major activities during the 5-year period.

A. Above-Ground Storage Facility (AGSF).

The AGSF is identified as “A” on the Future of WIPP Conceptual Draft diagram on page 17. But there is no description of that facility or why it is needed during the 5-year timeframe or for WIPP operations after that time. SRIC has reiterated its opposition to such a facility because WIPP is not a surface storage facility, has never been included in NEPA documents and decisions, and would endanger public health and the environment.

Revisions needed:

The Plan should state that there will not be an AGSF. However, if the facility and the permit modification request are part of the next 5-year timeframe and beyond that time, the Plan should explain why the facility is needed, by what date it is required to be operational, and when NEPA compliance and decisions will be accomplished.

B. Excluded waste.

Since 2003, there have been permitting activities related to DOE’s proposals to bring renamed high-level waste to WIPP, which have resulted in the excluded waste provision of the Permit. § 2.3.3.8. Since 2013, there is a class 3 permit modification request to change that provision. But the DSP includes no discussion of that modification or the need for such a modification. SRIC and many members of the public have strongly opposed such waste as being excluded by the LWA § 12.

Revisions needed: The Plan should state that the class 3 permit modification will be withdrawn. However, if DOE intends to pursue allowing excluded waste during the next five years, it should provide a timeframe of when such a modification is needed and the volume of waste by outer and inner container calculation, and how that volume complies with the capacity limit.

C. Remote-handled (RH) waste.

WIPP’s mission includes disposal of up to 250,000 cubic feet (7,079 cubic meters) of RH waste, which is included in the LWA, C&C Agreement, and WIPP Permit. The DSP briefly discusses RH waste in shielded containers (but not the number of shipments and number of containers) and only confirms that RH waste in canisters will not be authorized during the 5-year timeframe. at 19. Since the DSP also states that the design for new shielded containers is being explored, the inference is that all future RH waste will be in shielded containers, and none in canisters. But there is no technical documentation as to how all RH waste could come in shielded containers. Consequently, the DSP does not specifically state that WIPP will ever complete that RH waste mission, nor how much RH waste is expected to be emplaced.

The RH waste emplacement rate has always been insufficient to dispose of all such waste. In 2003, the DOE Inspector General (IG) reported:

“If current waste emplacement practices continue, by 2020, the repository, as now configured, will not be able to accommodate 980 planned shipments of remote-handled TRU waste. The Department has recognized the potential space problem and identified some alternatives, but has not yet formally planned for the resolution of this issue.”

<https://www.energy.gov/sites/prod/files/igprod/documents/CalendarYear2003/ig-0613.pdf> at 1.

What to do with RH waste is a major issue to be determined during the next five years, but it is not adequately addressed in the DSP.

*Revisions needed:* The Plan should discuss how much RH waste in shielded containers will be shipped and emplaced during the 5-year timeframe and years beyond. The Plan should include whether the RH volume limit is expected to be met. The Plan should include decisions (and permit modifications) that are expected regarding panel design and capacity and RH Bay modifications to accommodate RH waste in canisters or whether no more RH waste in canisters is planned.

#### D. Panel 10.

A decision that must be made during the next five years is whether or not Panel 10 will be used for waste emplacement. Yet the DSP contains no discussion of Panel 10. The Future of WIPP Conceptual Draft diagram on page 17 does not show any TRU waste in Panel 10.

*Revisions needed:* The Plan should state whether Panel 10 will be used, when such a decision will be made if no determination has yet been made, and how much waste by outer and inner container volumes would be emplaced if the panel were used.

### 3. Other Necessary Revisions.

#### A. Utility Shaft.

The DSP identifies the new shaft #5 as the Utility Shaft (at 5 and 12) and “New Air Stack for Unfiltered Exhaust” (p. 17). The new shaft #5 is identified as part of the ventilation system (at 5 and 12). But the diagram on page 13 does not include the new shaft #5 in the Safety Significant Confinement Ventilation System (SSCVS). In fact, the SSCVS could operate without the new shaft #5. The major reason for the new shaft #5 is for the proposed new underground footprint of panels and disposal rooms to the west of the existing underground footprint. Presumably that is the “operational efficiency” purpose of the five enumerated on page 12.

*Revisions needed:* The Plan should be revised to state that the new shaft is not essential to operate the SSCVS. The Plan should more fully describe the purpose of the shaft for future waste emplacement and the panels and rooms that will be needed.

#### B. Number of shipments.

The DSP states that the goal is 14 shipments per week. at 5. 14 shipments per week for 44 weeks equals 616 shipments, which is the stated goal for FY 2023 and FY 2024. at 18. However, the DSP also states that the goal is to have approximately 17 shipments per week by FY 2023. at 24.



*Revisions needed:* The Plan should include the number of shipments per week, the number of weeks available per year, and the annual shipments in future years. The Plan should also include any infrastructure or permit modification requirements to meet those shipment goals.

#### C. New Airlock and TRUdock.

The Future of WIPP Conceptual Draft diagram includes “F” Airlock to Additional TRUdock. The DSP otherwise provides no explanation of why an additional TRUdock is necessary, when it would be operational, what permit modifications would be required, among other things. Since the DSP includes no more than 17 shipments per week in the future and states that in the past WIPP has received more than twice that many shipments in a week, there is no basis given that such a new TRUdock is needed.

*Revisions needed:* The Plan should either eliminate the new Airlock and TRUdock or include a description of the need for such an additional TRUdock, when it would be operational, and what permit modifications would be required.

#### D. Historic inaccuracies.

The DSP states: “After the first waste receipt, shipping rates exceeded the designed shipping rate to a maximum of 36 shipments received in one week, and an average of about 25 shipments per week towards the end of that 15-year operational period.” at 8. However, as Attachment 2 shows, the maximum number of annual CH shipments was in FY 2006 when there were 1,128 shipments. The same number of shipments was made in FY 2010. Those two years cannot accurately be described as being “towards the end of that 15-year operational period.” The maximum amount of waste emplaced – the more appropriate metric – was also in FY 2006 with 10,555 cubic meters of CH waste. Again, that is not “towards the end of that 15-year operational period.”

*Revisions needed:* The Plan should change the statement on page 8, so that it accurately describes the history of maximum number of shipments and maximum waste emplacement.

#### E. Previous WIPP Strategic Plans

The DSP Cover Page states that the Plan supersedes DOE/CBFO-11-3473, Rev. 0. However, that document is not publicly available on the WIPP website or in the more than three million documents in the DOE Office of Scientific and Technical Information website – [www.osti.gov](http://www.osti.gov). On September 23, 2019, SRIC requested that the document be provided and made publicly available, but it is still not available.

In FY 2016, NWP was given a \$250,000 Performance Based Incentives bonus for “developing an overarching vision and strategy for WIPP to achieve its operational lifetime through FY 2050 with both near term and long term operational activities and projects.”

[https://www.wipp.energy.gov/NWPpayments/NWP/FY16\\_Fee\\_Determination\\_Scorecard\\_17-02\\_85.pdf](https://www.wipp.energy.gov/NWPpayments/NWP/FY16_Fee_Determination_Scorecard_17-02_85.pdf) at 4, Metric 8. The document - *WIPP Strategic Plan Operations Through 2050* – dated June 27, 2016 was publicly released only as a result of SRIC’s Freedom of Information Act request. [http://src.org/nuclear/docs/2016-06-27\\_FY-2016-Plan.pdf](http://src.org/nuclear/docs/2016-06-27_FY-2016-Plan.pdf)

As released to SRIC, the document was marked “Obsolete.” There has been no explanation as to why the taxpayers should have paid \$250,000 for such an “obsolete” document. However, major aspects of the NWP Strategic Plan are mirrored in the DSP, including:

- Operating WIPP until 2050
- “substantial repairs or replacements of existing structures, facilities and properties are needed within the next five years.” at 6.
- 44 weeks available for shipments. at 21.

The 2016 NWP Strategic Plan also references DOE/WIPP 04-3327, *Waste Isolation Pilot Plant Ten-Year Site Plan FY 2017-FY 2026*, Rev. 12 at 30. That document also is not publicly available on the WIPP website or in the more than three million documents in the DOE Office of Scientific and Technical Information website – [www.osti.gov](http://www.osti.gov). On September 23, 2019, SRIC requested that the document be provided and made publicly available, but it is still not available.

Revisions needed: DOE/CBFO-11-3473, Rev. 0 should be made publicly available, and the Plan should be revised to discuss the major changes from the earlier plan. DOE/WIPP 04-3327 should be made publicly available, and the Plan should be revised to discuss major changes from that Site Plan. The Plan should be revised to discuss the major changes compared with the FY 2016 NWP Strategic Plan.

#### F. Underground science laboratory.

The DSP briefly describes some historic underground science laboratory activities. at 9. But there is no discussion of current and future possible underground science laboratory activities or what portions of the underground are available for such activities.

Revisions needed: The Plan should either state that no further underground science laboratory activities are expected or describe the activities and portions of the underground that are available for such activities.

In summary, while the Strategic Plan is an important document to describe for DOE and the public what WIPP’s goals and operations will be for the next five years and in future years, the DSP has very significant deficiencies. The Plan must be substantially revised to adequately fulfill its purpose. “WIPP Forever” is not legally or publicly acceptable and must be eliminated, and plans for additional repositories must now be made publicly available.

Thank you for your careful consideration of and response to these comments and all others received.

Sincerely,



Don Hancock



**WIPP PERMITTED VS. ACTUAL CAPACITY**

Attachment 1

(in cubic meters) - As September 21, 2019

	<u>CH-Permitted</u>	<u>Actual</u>	<u>% Used</u>	<u>RH-Permitted</u>	<u>Actual</u>	<u>% Used</u>
Panel 1	18,000	10,497	58.32%	0		
Panel 2	18,000	17,998	99.99%	0		
Panel 3	18,750	17,092	91.16%	0		
Panel 4	18,750	14,258	76.04%	356	176	49.44%
Panel 5	18,750	15,927	84.94%	445	235	52.81%
Panel 6	18,750	14,467	77.16%	534	214	40.07%
Panels 1-6	<b>111,000</b>	<b>90,239</b>	<b>81.30%</b>	<b>1,335</b>	<b>625</b>	<b>46.82%</b>
Shortfall		<b>20,761</b>			<b>710</b>	
Panel 7	18,750	6,118		650	20	
Panel 8	18,750			650		
Panels 1-8	<b>148,500</b>	<b>96,357</b>		<b>2,635</b>	<b>645</b>	

## Notes:

"CH" is Contact-Handled waste; "RH" is Remote-Handled

"Permitted" refers to the capacity limits in the New Mexico WIPP permit

Volume is by outer container volume

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WIPP DISPOSAL																		Attachment 2		
in cubic meters - Outer container volume																				
																		to 9/21		
CH	FY1999	FY2000	FY01	FY02	FY03	FY04	FY05	FY2006	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY17	FY18	FY2019	Total
Argonne					97	24														121
Hanford		13	68	18	250	448	853	715	765	622	9	475	825							5,061
ORP																				
INL	15	87	717	2,065	567	342	2,564	7,890	5,390	3,304	4,621	5,114	4,211	2,620	2,099	1,138	453	2,111	2,033	47,341
KAPL-NFS																				
LANL	190		74	8	327		171	546	823	689	727	1,063	1,014	1,514	1,460	556	12	126	173	9,473
LBL																				
LLNL							146													146
Material & Fuels																				
NTS						106	235	64												405
NRD																				
ORR										12	37	230	79	57			20	340	200	975
RFETS	62	252	1,044	2,903	4,017	4,650	2,134													15,062
SNL																				
SRS			62	141	2,285	3,240	1,554	1,340	1,548	1,267	719	862	1,139	1,469	1,465	416	80	39	23	17,649
WCS/LANL																	99			99
	267	352	1,965	5,135	7,543	8,810	7,657	10,555	8,526	5,894	6,113	7,744	7,268	5,660	5,024	2,110	664	2,616	2,429	96,331
WIPP derived				1							3						21			25
Total	267	352	1,965	5,136	7,543	8,810	7,657	10,555	8,526	5,894	6,116	7,744	7,268	5,660	5,024	2,110	685	2,616	2,429	96,356
<u>RH</u>																				
Argonne										4.5	17.8	19.6	41.8	34.7	31.3	9.8			3.8	163.3
Bettis													4.5							4.5
GEVNC											5.3	23.1								28.5
Hanford																				0.0
INL									57.9	95.2	24.0	28.5	25.8	25.8	65.0	1.8				324.0
KAPL-Schen.																				
LANL											14.2									14.2
Material & Fuels																				
ORR											7.1	46.3	7.1	4.5						65.0
SANL														7.1						7.1
SRS											24.9		10.7	2.7						38.3
WV																				
									57.9	99.7	93.5	117.5	89.9	74.8	96.3	11.6	0.0	0.0	3.8	644.8

CH Shipments	FY1999	FY2000	FY01	FY02	FY03	FY04	FY05	FY2006	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY17	FY18	FY2019	
Argonne					9	5									1				2	17
Hanford		3	7	2	37	72	100	67	79	64	1	52	88							572
INL	3	13	121	373	85	38	308	833	637	421	640	669	555	361	299	124	48	232	253	6,013
LANL	17		7	1	46		37	105	116	76	116	157	172	230	184	64		1	30	1,359
LLNL							18													18
NTS						13	27	8												48
ORR										2	4	36	9	7			5	56	23	142
RFETS	12	42	162	469	437	597	326													2,045
SRS			7	16	185	239	125	115	122	122	87	82	115	157	178	61	9	1	2	1,623
WCS																	11	20	2	33
	32	58	304	861	799	964	941	1,128	954	685	848	996	939	755	662	249	73	310	312	11,870
<u>RH shipments</u>																				
Argonne										5	20	22	47	39	34	11				178
Bettis													5							5
GEVNC											6	26								32
INL									65	107	27	32	29	29	73	2				364
LANL											16									16
ORR											8	52	8	5						73
SANL														8						8
SRS											28		12	3						43
									65	112	105	132	101	84	107	13	0	0	0	719
CH+RH	32	58	304	861	799	964	941	1,128	1,019	797	953	1,128	1,040	839	769	262	73	310	312	12,589
Sources: DOE Run Date 4/16/2013 and subsequent DOE documents - some individual site volume numbers are approximate.																				
Notes: Argonne CH Shipments in FY2013 and FY 2019 were RH waste in lead-shielded container, which is included in RH volume.																				
WCS shipments in most years are included as LANL waste, where the waste originated.																				
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