ENCLOSURE 2

RA-ENO-EP1-10-135

Response to NRC Supplemental RAIs 1, 4, 5, and 6 for James A FitzPatrick Cycle 20 SLMCPR Submittal

Non-Proprietary Information

INFORMATION NOTICE

This is a non-proprietary version of RA-ENO-EP1-10-135 Enclosure 1, which has the proprietary information removed. Portions of the document that have been removed are indicated by white space inside open and closed bracket as shown here [[]].

NRC RAI-01

- a. For the "Cycle 20 Core" table provided in response to RAI-01 in the July 15, 2010, supplement, please provide a core map identifying each fuel assemblies including Cycle 18 (thrice-burn) through Cycle 20 (fresh fuel) and identifying assemblies reached 0.1 % boiling transition criterion for the SLMCPR value calculation.
- b. Provide more details to describe how each of the identified inputs was used to determine the final core loading pattern for Cycle 20. Also provide a flow chart to show specific values/limit and to describe the inter-relationship among the inputs of: cycle energy requirements, reactivity margins, discharge exposure limitations and other limits, desired control rod patterns, and minimize channel distortion.
- c. Core design is an iterative process designed to develop an optimal configuration that meets both operational requirements such as those identified in the response to RAI-01 and all applicable safety limits. Please provide a description of the core design process used for Cycle 20 and the Quality Assurance and Quality Control procedures in place to assure that the final design meets the SLMCPR limits for the fuel used in the core.

GNF Response

Reference: NRC Audit on Fitzpatrick C20 SLMCPR Tech. Spec. Change letter.

Attendees: Tai Huang (NRC), Tony Attard (NRC), George Rorke (Entergy), Atul Karve (GNF), and Russ Fawcett (GNF).

Time and Place: August 10, 2010, 9.00am to 3.00pm, NEI office at 1776 I Street NW, Suite 400, Washington, DC, 20006

RAI-01 Part a. This question consists of two parts.

At the audit it was agreed that to close the first part of Part a, FitzPatrick C19 and C20 bundle ID maps and bundle type maps are adequate.

- 1. Fitzpatrick C19 reference loading pattern bundle ID and bundle type map is shown in the enclosed three figures labeled Fitzpatrick Cycle 19 Bundle ID (2 figures) and Type Map.
- 2. Fitzpatrick C20 reference loading pattern bundle ID and bundle type map is shown in the enclosed three figures labeled Fitzpatrick Cycle 20 Bundle ID (2 figures) and Type Map.

The response to RAI-06 (1) addresses the second part of RAI-01 Part a.

RAI-01 Part b. At the audit it was agreed that to close RAI-01 Part b, the presentation provided by Russ Fawcett, on the basics of how GNF performs fuel cycle core design is adequate. The presentation is provided in Enclosure 3 labeled as Attachment 1. Please note that the presentation is general information, which is subject to change, and is not intended to reflect specific procedures.

RA-ENO-EP1-10-135 Enclosure 2

1	2	3	4	5	6	7	8	9 JLM361	10 JLM401	11 JLM309	12 JLM269	13 JLM369
2							JLM325	JLM345	JLM301	JLM405	JLM321	JLM341
3				JLM285	JLM441	JLM305	JLM277	JLY765	JLM365	JLY748	JLM389	JLM417
4			JLM381	JLM449	JLY852	JLY869	JLY689	JYE453	JYE461	JYE469	JYE477	JYE485
5		JLM393	JLM445	JLM293	JLY816	JLY757	JYE517	JLY809	JYE429	JLY857	JYE437	JLY769
6		JLM329	JLY873	JLY720	JLY697	JYE493	JYE501	JYE509	JLY733	JYE445	JLY721	JYE525
7		JLM273	JLY865	JLY693	JYE497	JLY813	JYE605	JLY881	JYE533	JLY773	JYE541	JLY821
8	JLM433	JLM413	JLY777	JYE521	JYE505	JYE609	JLY861	JYE549	JLY825	JYE557	JLY761	JYE613
9 JLM265	JLM289	JLY741	JYE457	JLY701	JYE513	JLY729	JYE553	JLY717	JYE565	JLY878	JYE573	JLY817
10 JLM864	JLM453	JLM297	JYE465	JYE433	JLY829	JYE537	JLY801	JYE569	JLY785	JYE581	JLY725	JYE589
11 JLM861	JLM421	JLY685	JYE473	JLY837	JYE449	JLY781	JYE561	JLY841	JYE585	JLY709	JYE621	JLY756
12 JLM409	JLM385	JLM429	JYE481	JYE441	JLY853	JYE545	JLY833	JYE577	JLY845	JYE625	JLY713	JYE597
13 JLM437	JLM425	JLM461	JYE489	JLY745	JYE529	JLY749	JYE617	JLY789	JYE593	JLY805	JYE601	JLY753
14 JLM440	JLM428	JLM464	JYE492	JLY705	JYE532	JLY824	JYE620	JLY792	JYE596	JLY808	JYE604	JLY737
15 JLM412	JLM388	JLM432	JYE484	JYE444	JLY851	JYE548	JLY836	JYE580	JLY712	JYE628	JLY850	JYE600
16 JLM384	JLM424	JLY688	JYE476	JLY840	JYE452	JLY820	JYE564	JLY844	JYE588	JLY716	JYE624	JLY819
17 JLM458	JLM456	JLM300	JYE468	JYE436	JLY832	JYE540	JLY804	JYE572	JLY788	JYE584	JLY728	JYE592
18 JLM268	JLM292	JLY744	JYE460	JLY704	JYE516	JLY732	JYE556	JLY800	JYE568	JLY877	JYE576	JLY724
19	JLM436	JLM416	JLY708	JYE524	JYE508	JYE612	JLY864	JYE552	JLY828	JYE560	JLY764	JYE616
20		JLM276	JLY868	JLY696	JYE500	JLY818	JYE608	JLY884	JYE536	JLY776	JYE544	JLY797
21		JLM332	JLY876	JLY796	JLY700	JYE496	JYE504	JYE512	JLY795	JYE448	JLY739	JYE528
22		JLM396	JLM448	JLM296	JLY707	JLY760	JYE520	JLY706	JYE432	JLY849	JYE440	JLY772
23			JLM457	JLM452	JLY848	JLY872	JLY692	JYE456	JYE464	JYE472	JYE480	JYE488
24				JLM288	JLM444	JLM308	JLM280	JLY766	JLM368	JLY768	JLM392	JLM420
25 26							JLM328	JLM348 JLM364	JLM304 JLM404	JLM408 JLM312	JLM324 JLM272	JLM344 JLM372
Fitzpatrick C19	Bundle ID	Мар										
Fitzpatrick C19	Bundle ID	Мар 16	17	18	19	20	21	22	23	24	25	26
14 1 JLM370	15 JLM270	16 JLM310	JLM402	JLM362	19	20	21	22	23	24	25	26
14 1 JLM370 2 JLM342	15	16 JLM310 JLM406	JLM402		19 JLM326	20			23	24	25	26
14 1 JLM370 2 JLM342 3 JLM418	15 JLM270 JLM322 JLM390	16 JLM310 JLM406 JLY780	JLM402 JLM302 JLM366	JLM362 JLM346 JLY736	JLM326 JLM278	JLM306		22 JLM286	23	24	25	26
14 1 JLM370 2 JLM342 3 JLM418 4 JYE486	15 JLM270 JLM322 JLM390 JYE478	16 JLM310 JLM406 JLY780 JYE470	JLM402 JLM302 JLM366 JYE462	JLM362 JLM346 JLY736 JYE454	JLM326 JLM278 JLY690	JLM306 JLY870	JLM442 JLY860	JLM286 JLM450	JLM382		25	26
14 1 JLM370 2 JLM342 3 JLM418 4 JYE486 5 JLY770	15 JLM270 JLM322 JLM390 JYE478 JYE438	16 JLM310 JLM406 JLY780 JYE470 JLY858	JLM402 JLM302 JLM366 JYE462 JYE430	JLM362 JLM346 JLY736 JYE454 JLY810	JLM326 JLM278 JLY690 JYE518	JLM306 JLY870 JLY758	JLM442 JLY860 JLY794	JLM286 JLM450 JLM294	JLM382 JLM446	JLM394	25	26
14 1 JLM370 2 JLM342 3 JLM418 4 JYE486 5 JLY770 6 JYE526	15 JLM270 JLM322 JLM390 JYE478 JYE438 JLY738	16 JLM310 JLM406 JLY780 JYE470 JLY858 JYE446	JLM402 JLM302 JLM366 JYE462 JYE430 JLY734	JLM362 JLM346 JLY736 JYE454 JLY810 JYE510	JLM326 JLM278 JLY690 JYE518 JYE502	JLM306 JLY870 JLY758 JYE494	JLM442 JLY860 JLY794 JLY698	JLM286 JLM450 JLM294 JLY812	JLM382 JLM446 JLY874	JLM394 JLM330	25	26
14 1 JLM370 2 JLM342 3 JLM418 4 JYE486 5 JLY770 6 JYE526 7 JLY750	15 JLM270 JLM322 JLM390 JYE478 JYE438 JLY738 JYE542	16 JLM310 JLM406 JLY780 JYE470 JLY858 JYE446 JLY774	JLM402 JLM302 JLM366 JYE462 JYE430 JLY734 JYE534	JLM362 JLM346 JLY736 JYE454 JLY810 JYE510 JLY882	JLM326 JLM278 JLY690 JYE518 JYE502 JYE606	JLM306 JLY870 JLY758 JYE494 JLY814	JLM442 JLY860 JLY794 JLY698 JYE498	JLM286 JLM450 JLM294 JLY812 JLY694	JLM382 JLM446 JLY874 JLY866	JLM394 JLM330 JLM274		26
14 1 JLM370 2 JLM342 3 JLM418 4 JYE486 5 JLY770 6 JYE526 7 JLY750 8 JYE614	15 JLM270 JLM322 JLM390 JYE478 JYE438 JLY738 JYE542 JLY762	16 JLM310 JLM406 JLY780 JYE470 JLY858 JYE446 JLY774 JYE558	JLM402 JLM302 JLM366 JYE462 JYE430 JLY734 JYE534 JLY826	JLM362 JLM346 JLY736 JYE454 JLY810 JYE510 JLY882 JYE550	JLM326 JLM278 JLY690 JYE518 JYE502 JYE606 JLY862	JLM306 JLY870 JLY758 JYE494 JLY814 JYE610	JLM442 JLY860 JLY794 JLY698 JYE498 JYE506	JLM286 JLM450 JLM294 JLY812 JLY694 JYE522	JLM382 JLM446 JLY874 JLY866 JLY778	JLM394 JLM330 JLM274 JLM414	JLM434	
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14 1 JLM370 2 JLM342 3 JLM418 4 JYE486 5 JLY770 6 JYE526 7 JLY750 8 JYE614 9 JLY722 10 JYE590 11 JLY798 12 JYE598 13 JLY754 14 JLY755	15 JLM320 JLM320 JYE478 JYE438 JLY738 JYE542 JLY762 JYE574 JLY726 JYE622 JLY846 JYE602 JYE603	16 JLM310 JLM406 JLY780 JYE470 JLY858 JYE446 JLY774 JYE558 JLY880 JYE582 JLY714 JYE626 JLY806 JLY806 JLY806	JLM402 JLM302 JLM366 JYE462 JYE430 JLY734 JYE534 JLY826 JYE566 JLY786 JLY780 JLY710 JYE594 JYE595	JLM362 JLM346 JLY736 JYE454 JLY810 JYE510 JLY718 JYE550 JLY718 JYE570 JLY842 JYE578 JLY790 JLY791	JLM326 JLM278 JLY690 JYE518 JYE502 JYE606 JLY862 JYE554 JLY802 JYE562 JLY834 JYE618 JYE619	JLM306 JLY870 JLY8758 JYE494 JLY814 JYE610 JLY730 JYE538 JLY782 JYE546 JLY822 JLY551	JLM442 JLY860 JLY794 JLY698 JYE506 JYE514 JLY830 JYE450 JLY854 JYE530 JYE531	JLM286 JLM450 JLM294 JLY812 JLY694 JYE522 JLY702 JYE434 JLY838 JYE442 JLY746 JLY746	JLM382 JLM446 JLY874 JLY866 JLY778 JYE458 JYE466 JYE474 JYE482 JYE490 JYE490	JLM394 JLM330 JLM274 JLM414 JLY742 JLM298 JLY686 JLM430 JLM462 JLM462	JLM434 JLM290 JLM454 JLM422 JLM386 JLM426 JLM427	JLM266 JLM460 JLM862 JLM410 JLM438 JLM439
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14 1 JLM370 2 JLM342 3 JLM418 4 JYE486 5 JLY770 6 JYE526 7 JLY750 8 JYE614 9 JLY722 10 JYE590 11 JLY798 12 JYE598 13 JLY754 14 JLY755 15 JYE599 16 JLY799	15 JLM270 JLM320 JYE478 JYE438 JLY738 JYE542 JLY762 JYE574 JLY726 JYE602 JYE602 JYE603 JLY847 JYE603 JLY847 JYE623	16 JLM310 JLM406 JLY780 JYE470 JLY858 JYE446 JLY774 JYE558 JLY880 JYE582 JLY714 JYE626 JLY807 JYE627 JLY815	JLM402 JLM302 JLM366 JYE462 JYE430 JLY734 JYE566 JLY786 JLY786 JLY710 JYE594 JYE595 JLY711 JYE587	JLM362 JLM346 JLY736 JYE454 JLY810 JYE510 JLY882 JYE550 JLY718 JYE570 JLY842 JYE579 JLY790 JLY791 JYE579 JLY843	JLM326 JLM278 JLY690 JYE518 JYE502 JYE606 JLY862 JYE554 JLY802 JYE562 JLY834 JYE619 JLY835 JYE619 JLY835 JYE563	JLM306 JLY870 JLY758 JYE494 JLY814 JYE610 JLY730 JYE538 JLY782 JYE546 JLY822 JLY751 JYE547 JLY783	JLM442 JLY860 JLY794 JLY698 JYE596 JYE514 JLY850 JYE530 JYE530 JYE531 JLY855 JYE451	JLM286 JLM450 JLM294 JLY812 JLY694 JYE522 JLY702 JYE434 JLY838 JYE442 JLY746 JLY747 JYE443 JLY839	JLM382 JLM446 JLY874 JLY866 JLY778 JYE458 JYE466 JYE474 JYE482 JYE490 JYE491 JYE483 JYE475	JLM394 JLM330 JLM274 JLM414 JLY742 JLM298 JLY686 JLM430 JLM463 JLM431 JLM431 JLY687	JLM434 JLM290 JLM454 JLM422 JLM386 JLM426 JLM427 JLM387 JLM387 JLM423	JLM266 JLM460 JLM862 JLM410 JLM438 JLM439 JLM411 JLM863
14 1 JLM370 2 JLM342 3 JLM418 4 JYE486 5 JLY770 6 JYE526 7 JLY750 8 JYE614 9 JLY722 10 JYE590 11 JLY798 12 JYE598 13 JLY754 14 JLY755 15 JYE599 16 JLY799 17 JYE591	15 JLM270 JLM320 JYE478 JYE438 JLY738 JYE542 JYE574 JLY726 JYE602 JYE602 JYE602 JYE603 JLY847 JYE623 JLY727	16 JLM310 JLM406 JLY780 JYE470 JLY858 JYE446 JLY774 JYE558 JLY880 JYE582 JLY714 JYE626 JLY806 JLY807 JYE627 JLY775 JYE583	JLM402 JLM302 JLM366 JYE462 JYE430 JLY734 JLY826 JYE586 JLY710 JYE594 JYE595 JLY711 JYE587 JLY711 JYE587 JLY711	JLM362 JLM346 JLY736 JYE454 JLY810 JYE510 JLY718 JYE550 JLY718 JYE578 JLY790 JLY791 JYE579 JLY843 JYE571	JLM326 JLM278 JLY690 JYE518 JYE502 JYE606 JLY862 JYE554 JLY802 JYE562 JLY834 JYE618 JYE618 JYE63 JYE563 JLY835 JYE563 JLY835	JLM306 JLY870 JLY758 JYE494 JLY814 JYE610 JLY730 JYE538 JLY782 JYE546 JLY822 JLY751 JYE547 JLY783 JYE539	JLM442 JLY860 JLY794 JLY698 JYE506 JYE514 JLY830 JYE450 JYE530 JYE531 JLY855 JYE451 JLY831	JLM286 JLM450 JLM294 JLY812 JLY694 JYE522 JLY702 JYE434 JLY746 JLY747 JYE443 JLY839 JYE435	JLM382 JLM446 JLY874 JLY866 JLY778 JYE456 JYE474 JYE482 JYE490 JYE491 JYE483 JYE475 JYE467	JLM394 JLM330 JLM274 JLM414 JLY742 JLM298 JLY686 JLM430 JLM462 JLM463 JLM431 JLY687 JLM299	JLM434 JLM290 JLM454 JLM422 JLM386 JLM426 JLM427 JLM387 JLM423 JLM455	JLM266 JLM460 JLM862 JLM410 JLM438 JLM439 JLM411 JLM863 JLM459
14 1 JLM370 2 JLM342 3 JLM418 4 JYE486 5 JLY770 6 JYE526 7 JLY750 8 JYE614 9 JLY722 10 JYE598 11 JLY798 12 JYE598 13 JLY754 14 JLY755 15 JYE599 16 JLY799 17 JYE591 18 JLY723	15 JLM270 JLM322 JLM390 JYE478 JYE543 JLY762 JYE574 JLY726 JYE602 JYE602 JYE603 JLY847 JYE623 JLY727 JYE623 JLY727 JYE575	16 JLM310 JLM406 JLY780 JYE470 JLY858 JYE446 JLY774 JYE558 JLY880 JYE582 JLY714 JYE626 JLY806 JLY807 JYE627 JLY715 JYE627 JLY715 JYE583 JLY879	JLM402 JLM302 JLM366 JYE462 JYE430 JLY734 JYE586 JLY710 JYE586 JLY710 JYE594 JYE595 JLY711 JYE587 JLY717 JYE587	JLM362 JLM346 JLY736 JYE454 JLY810 JYE510 JLY718 JYE550 JLY795 JLY791 JYE578 JLY790 JLY842 JYE579 JLY843 JYE571 JLY719	JLM326 JLM278 JLY690 JYE518 JYE502 JYE606 JLY862 JYE554 JLY802 JYE562 JLY834 JYE619 JLY835 JYE563 JLY803 JYE555	JLM306 JLY870 JLY758 JYE494 JLY814 JYE610 JLY730 JYE538 JLY782 JLY751 JYE547 JLY751 JYE547 JLY783 JYE539 JLY731	JLM442 JLY860 JLY794 JYE498 JYE506 JYE514 JLY854 JYE530 JYE531 JLY855 JYE451 JLY855 JYE451	JLM286 JLM450 JLM294 JLY812 JLY694 JYE522 JLY702 JYE434 JLY838 JYE442 JLY747 JYE443 JLY839 JYE435 JLY703	JLM382 JLM446 JLY874 JLY866 JLY778 JYE458 JYE474 JYE482 JYE490 JYE491 JYE483 JYE475 JYE467 JYE459	JLM394 JLM330 JLM274 JLM414 JLY742 JLM298 JLM430 JLM430 JLM462 JLM431 JLM431 JLY687 JLM299 JLY743	JLM434 JLM290 JLM454 JLM422 JLM386 JLM427 JLM387 JLM423 JLM455 JLM291	JLM266 JLM460 JLM862 JLM410 JLM438 JLM439 JLM411 JLM863
14 1 JLM370 2 JLM342 3 JLM418 4 JYE486 5 JLY770 6 JYE596 7 JLY750 8 JYE614 9 JLY722 10 JYE590 11 JLY798 12 JYE598 13 JLY754 14 JLY755 15 JYE599 16 JLY799 17 JYE591 18 JLY723 19 JYE615	15 JLM320 JLM390 JYE478 JYE438 JLY738 JYE542 JLY762 JYE622 JLY846 JYE602 JYE603 JLY847 JYE633 JLY727 JYE575 JLY763	16 JLM310 JLM406 JLY780 JYE470 JLY858 JYE446 JLY774 JYE558 JLY890 JYE582 JLY714 JYE626 JLY806 JLY807 JYE627 JLY715 JYE583 JLY879 JYE559	JLM402 JLM302 JLM366 JYE430 JLY734 JYE534 JYE566 JYE566 JYE586 JYE594 JYE595 JLY710 JYE597 JLY711 JYE587 JLY717 JYE587	JLM362 JLM346 JLY736 JYE454 JLY810 JYE550 JLY718 JYE570 JLY842 JYE578 JLY790 JLY843 JYE571 JYE571 JYE571 JYE571 JLY719 JYE571	JLM326 JLM278 JLY690 JYE518 JYE502 JYE606 JLY862 JYE554 JLY803 JYE619 JLY834 JYE619 JLY835 JYE563 JLY803 JLY803 JLY803 JYE555 JLY803	JLM306 JLY870 JLY758 JYE494 JLY814 JYE610 JLY730 JYE538 JLY782 JLY751 JYE547 JLY783 JYE539 JLY731 JYE611	JLM442 JLY860 JLY794 JYE498 JYE506 JYE514 JLY830 JYE530 JYE531 JLY855 JYE451 JLY855 JYE451 JLY831 JYE515 JYE515	JLM286 JLM450 JLM294 JLY812 JLY694 JYE522 JLY702 JYE434 JLY838 JYE442 JLY746 JLY747 JYE443 JLY839 JYE435 JLY703 JYE523	JLM382 JLM446 JLY874 JLY866 JLY778 JYE458 JYE464 JYE490 JYE491 JYE483 JYE475 JYE467 JYE467 JYE459 JLY779	JLM394 JLM330 JLM274 JLM414 JLY742 JLM298 JLY686 JLM430 JLM463 JLM431 JLY687 JLM299 JLY743 JLM299 JLY743 JLM415	JLM434 JLM290 JLM454 JLM422 JLM386 JLM426 JLM427 JLM387 JLM423 JLM455	JLM266 JLM460 JLM862 JLM410 JLM438 JLM439 JLM411 JLM863 JLM459
14 1 JLM370 2 JLM342 3 JLM418 4 JYE486 5 JLY770 6 JYE526 7 JLY750 8 JYE614 9 JLY722 10 JYE590 11 JLY798 12 JYE598 13 JLY754 14 JLY755 15 JYE599 16 JLY799 17 JYE591 18 JLY723 19 JYE615 20 JLY823	15 JLM370 JLM390 JYE478 JYE438 JLY738 JYE542 JYE574 JLY726 JYE622 JLY846 JYE602 JYE603 JLY847 JYE623 JLY727 JYE575 JLY763 JYE575 JLY763 JYE543	16 JLM310 JLM406 JLY780 JYE470 JLY858 JYE446 JLY774 JYE558 JLY880 JYE626 JLY806 JLY807 JYE627 JLY715 JYE589 JLY875 JYE755	JLM402 JLM302 JLM366 JYE430 JLY734 JYE534 JLY826 JYE566 JLY780 JLY710 JYE594 JYE595 JLY711 JYE587 JLY877 JYE587 JLY887 JYE567 JYE567	JLM362 JLM346 JLY736 JYE454 JLY810 JYE550 JLY718 JYE570 JLY842 JYE578 JLY790 JLY843 JYE579 JLY843 JYE571 JLY843 JYE551 JLY843 JYE551 JLY843	JLM326 JLM278 JLY690 JYE518 JYE502 JYE606 JLY862 JYE554 JLY802 JYE662 JLY834 JYE619 JLY835 JYE563 JLY803 JYE555 JLY803 JYE555 JLY863 JYE607	JLM306 JLY870 JLY8758 JYE494 JYE610 JLY730 JYE538 JLY782 JYE546 JLY822 JLY751 JYE547 JLY783 JYE539 JLY731 JYE611 JYE611	JLM442 JLY860 JLY794 JYE498 JYE506 JYE514 JLY830 JYE450 JYE530 JYE531 JLY855 JYE451 JLY831 JYE515 JYE507 JYE499	JLM286 JLM450 JLM294 JLY812 JLY694 JYE522 JLY702 JYE434 JLY746 JLY747 JYE443 JLY839 JYE435 JLY703 JYE523 JLY695	JLM382 JLM446 JLY874 JLY866 JLY778 JYE458 JYE474 JYE490 JYE491 JYE483 JYE475 JYE467 JYE459 JLY779 JLY867	JLM394 JLM330 JLM274 JLM414 JLY742 JLM298 JLY686 JLM463 JLM463 JLM431 JLY687 JLM299 JLY743 JLM295 JLM415 JLM415	JLM434 JLM290 JLM454 JLM422 JLM386 JLM427 JLM387 JLM423 JLM455 JLM291	JLM266 JLM460 JLM862 JLM410 JLM438 JLM439 JLM411 JLM863 JLM459
14 1 JLM370 2 JLM342 3 JLM418 4 JYE486 5 JLY770 6 JYE526 7 JLY750 8 JYE614 9 JLY722 10 JYE590 11 JLY798 12 JYE598 13 JLY754 14 JLY755 15 JYE599 16 JLY799 17 JYE591 18 JLY723 19 JYE615 20 JLY823 21 JYE527	15 JLM270 JLM320 JYE478 JYE438 JLY738 JYE542 JLY762 JYE574 JLY766 JYE602 JYE603 JLY846 JYE603 JLY727 JYE575 JLY753 JLY7543 JLY7543 JLY740	16 JLM310 JLM406 JLY780 JYE470 JLY858 JYE446 JLY774 JYE558 JLY800 JYE582 JLY714 JYE626 JLY807 JYE627 JLY715 JYE583 JLY879 JYE559 JLY775 JYE559 JLY775 JYE447	JLM402 JLM302 JLM366 JYE462 JYE430 JLY734 JYE586 JLY786 JYE596 JLY710 JYE594 JYE595 JLY711 JYE587 JLY787 JYE567 JLY827 JYE535 JLY735	JLM362 JLM346 JLY736 JYE454 JLY810 JYE550 JLY718 JYE570 JLY842 JYE578 JLY790 JLY791 JYE579 JLY843 JYE571 JLY719 JYE551 JYE551	JLM326 JLM278 JLY690 JYE518 JYE502 JYE606 JLY862 JYE554 JLY802 JYE663 JYE619 JLY803 JYE555 JLY803 JYE555 JLY803 JYE607 JYE607	JLM306 JLY870 JLY870 JYE494 JYE610 JLY730 JYE538 JLY782 JYE546 JLY822 JLY751 JYE547 JLY783 JLY731 JYE611 JYE611 JYE611 JYE495	JLM442 JLY860 JLY794 JYE498 JYE506 JYE514 JLY830 JYE450 JYE530 JYE531 JLY855 JYE451 JLY851 JYE507 JYE507 JYE499 JLY699	JLM286 JLM450 JLM294 JLY812 JLY694 JYE522 JLY702 JYE434 JLY746 JLY747 JYE443 JLY839 JYE435 JLY703 JYE523 JYE523 JLY695 JLY752	JLM382 JLM446 JLY874 JLY866 JLY778 JYE458 JYE474 JYE490 JYE491 JYE497 JYE459 JLY779 JLY867 JLY875	JLM394 JLM330 JLM274 JLM414 JLY742 JLM498 JLM430 JLM463 JLM463 JLM431 JLY687 JLM299 JLY743 JLM415 JLM275 JLM275 JLM331	JLM434 JLM290 JLM454 JLM422 JLM386 JLM427 JLM387 JLM423 JLM455 JLM291	JLM266 JLM460 JLM862 JLM410 JLM438 JLM439 JLM411 JLM863 JLM459
14 1 JLM370 2 JLM342 3 JLM418 4 JYE486 5 JLY770 6 JYE526 7 JLY750 8 JYE614 9 JLY722 10 JYE590 11 JLY798 12 JYE598 13 JLY755 15 JYE599 16 JLY799 17 JYE591 18 JLY723 19 JYE615 20 JLY823 21 JYE527 22 JLY771	15 JLM270 JLM390 JYE478 JYE438 JLY738 JYE542 JJYE574 JLY726 JYE602 JYE602 JYE603 JLY847 JYE623 JLY727 JYE575 JLY763 JLY763 JLY763 JLY740 JYE5439	16 JLM310 JLM406 JLY780 JYE470 JLY858 JYE446 JLY774 JYE558 JLY880 JYE582 JLY714 JYE626 JLY807 JYE627 JLY807 JYE627 JLY875 JYE583 JLY879 JYE559 JLY775 JYE5447 JLY859	JLM402 JLM302 JLM366 JYE462 JYE430 JLY734 JLY826 JYE586 JLY710 JYE594 JYE595 JLY711 JYE587 JLY827 JYE587 JLY827 JYE587 JLY827 JYE535 JLY735 JLY735 JLY735	JLM362 JLM346 JLY736 JYE454 JLY810 JYE510 JLY718 JYE570 JLY791 JYE579 JLY791 JYE571 JYE571 JLY719 JYE551 JLY843 JYE551 JLY843 JYE551 JLY843	JLM326 JLM278 JLY690 JYE518 JYE502 JYE606 JLY862 JYE564 JLY802 JYE562 JLY834 JYE618 JYE619 JLY835 JYE563 JLY803 JYE555 JLY863 JYE503 JYE503 JYE503 JYE503 JYE503 JYE519	JLM306 JLY870 JLY758 JYE494 JLY814 JYE610 JLY730 JYE538 JLY782 JYE546 JLY822 JLY751 JYE547 JYE547 JLY783 JYE539 JLY731 JYE611 JYE495 JYE495	JLM442 JLY860 JLY794 JLY698 JYE506 JYE510 JYE510 JYE530 JYE530 JYE531 JLY855 JYE451 JYE515 JYE451 JYE507 JYE499 JLY699 JLY793	JLM286 JLM294 JLY812 JLY694 JYE522 JLY702 JYE434 JLY838 JYE442 JLY747 JYE443 JLY839 JYE435 JLY703 JYE523 JLY703 JLY623 JLY752 JLY752 JLY752	JLM382 JLM446 JLY874 JLY866 JLY778 JYE456 JYE474 JYE482 JYE490 JYE495 JYE459 JLY779 JLY875 JLY875 JLM447	JLM394 JLM330 JLM274 JLM414 JLY742 JLM298 JLY686 JLM463 JLM463 JLM431 JLY687 JLM299 JLY743 JLM295 JLM415 JLM415	JLM434 JLM290 JLM454 JLM422 JLM386 JLM427 JLM387 JLM423 JLM455 JLM291	JLM266 JLM460 JLM862 JLM410 JLM438 JLM439 JLM411 JLM863 JLM459
14 1 JLM370 2 JLM342 3 JLM418 4 JYE486 5 JLY770 6 JYE526 7 JLY750 8 JYE614 9 JLY722 10 JYE598 13 JLY754 14 JLY755 15 JYE599 16 JLY799 17 JYE591 18 JLY723 19 JYE615 20 JLY823 21 JYE527 22 JLY771 23 JYE487	15 JLM270 JLM320 JYE478 JYE438 JLY738 JLY762 JYE574 JLY726 JYE602 JYE602 JYE603 JLY847 JYE623 JLY727 JYE575 JLY763 JLY740 JYE543 JLY740 JYE439 JYE479	16 JLM310 JLM406 JLY780 JYE470 JLY858 JYE446 JLY774 JYE558 JLY880 JYE582 JLY714 JYE626 JLY806 JLY807 JYE627 JYE755 JYE583 JLY875 JYE583 JLY775 JYE583 JLY775 JYE447	JLM402 JLM302 JLM366 JYE462 JYE430 JLY734 JLY826 JYE586 JLY710 JYE594 JYE597 JLY711 JYE587 JLY787 JYE587 JLY827 JYE537 JLY827 JYE537 JLY827 JYE533 JLY735 JLY735 JLY735 JLY735	JLM362 JLM346 JLY736 JYE454 JLY810 JYE510 JLY718 JYE550 JLY790 JLY791 JYE579 JLY843 JYE571 JLY819 JYE551 JLY883 JYE511 JLY881 JYE511 JLY881 JYE511	JLM326 JLM278 JLY690 JYE518 JYE502 JYE606 JLY862 JYE554 JLY803 JYE619 JLY835 JYE663 JLY803 JYE555 JLY803 JYE507 JYE507 JYE509 JYE519	JLM306 JLY870 JLY758 JYE494 JLY814 JYE610 JLY730 JYE538 JLY782 JLY751 JYE547 JLY783 JYE539 JLY731 JYE611 JLY815 JYE495 JLY759 JLY871	JLM442 JLY860 JLY794 JYE498 JYE506 JYE510 JYE530 JYE531 JLY855 JYE451 JLY855 JYE451 JYE507 JYE499 JLY699 JLY699 JLY793 JLY856	JLM286 JLM450 JLM294 JLY812 JLY694 JYE522 JLY702 JYE434 JLY746 JLY747 JYE443 JLY839 JYE435 JLY703 JYE523 JLY695 JLY752 JLM295 JLM295	JLM382 JLM446 JLY874 JLY866 JLY778 JYE458 JYE474 JYE490 JYE491 JYE497 JYE459 JLY779 JLY867 JLY875	JLM394 JLM330 JLM274 JLM414 JLY742 JLM498 JLM430 JLM463 JLM463 JLM431 JLY687 JLM299 JLY743 JLM415 JLM275 JLM275 JLM331	JLM434 JLM290 JLM454 JLM422 JLM386 JLM427 JLM387 JLM423 JLM455 JLM291	JLM266 JLM460 JLM862 JLM410 JLM438 JLM439 JLM411 JLM863 JLM459
14 1 JLM370 2 JLM342 3 JLM418 4 JYE486 5 JLY770 6 JYE596 7 JLY750 8 JYE614 9 JLY722 10 JYE590 11 JLY798 12 JYE598 13 JLY754 14 JLY755 15 JYE599 16 JLY799 17 JYE591 18 JLY723 19 JYE615 20 JLY823 21 JYE527 22 JLY771 23 JYE487 24 JLM419	15 JLM370 JLM320 JYE478 JYE438 JLY738 JYE542 JLY762 JYE622 JYE602 JYE603 JLY847 JYE623 JLY727 JYE575 JLY763 JYE543 JLY740 JYE439 JYE479 JYE479 JKM391	16 JLM310 JLM406 JLY780 JYE470 JLY858 JYE446 JLY774 JYE558 JLY890 JYE626 JLY806 JLY807 JYE627 JLY715 JYE583 JLY879 JYE559 JLY775 JYE4477 JLY859 JYE471 JLY784	JLM402 JLM302 JLM366 JYE462 JYE430 JLY734 JYE586 JYE586 JYE586 JLY710 JYE594 JYE595 JLY711 JYE587 JLY787 JYE567 JLY827 JYE535 JLY735 JLY735 JLY735 JLY735 JLY735 JLY736 JLY736 JLY736 JLY736 JLY736 JLY736 JLY736 JLY736 JLY736	JLM362 JLM346 JLY736 JYE454 JLY810 JYE510 JLY718 JYE550 JLY790 JLY791 JYE579 JLY843 JYE571 JLY843 JYE551 JLY883 JYE511 JLY883 JYE511 JLY883 JYE511 JLY881 JYE515 JLY881 JYE515 JLY881	JLM326 JLM278 JLY690 JYE518 JYE502 JYE502 JYE554 JLY802 JYE562 JLY834 JYE619 JLY835 JYE563 JLY803 JYE555 JLY803 JYE507 JYE507 JYE509 JYE509 JYE509 JYE509 JYE509 JYE509 JYE509 JYE509 JYE509 JYE509 JYE509 JYE509 JYE509 JYE509	JLM306 JLY870 JLY758 JYE494 JLY814 JYE610 JLY730 JYE538 JLY782 JYE546 JLY822 JLY751 JYE547 JYE547 JLY783 JYE539 JLY731 JYE611 JYE495 JYE495	JLM442 JLY860 JLY794 JLY698 JYE506 JYE510 JYE510 JYE530 JYE530 JYE531 JLY855 JYE451 JYE515 JYE451 JYE507 JYE499 JLY699 JLY793	JLM286 JLM294 JLY812 JLY694 JYE522 JLY702 JYE434 JLY838 JYE442 JLY747 JYE443 JLY839 JYE435 JLY703 JYE523 JLY703 JLY623 JLY752 JLY752 JLY752	JLM382 JLM446 JLY874 JLY866 JLY778 JYE456 JYE474 JYE482 JYE490 JYE495 JYE459 JLY779 JLY875 JLY875 JLM447	JLM394 JLM330 JLM274 JLM414 JLY742 JLM498 JLM430 JLM463 JLM463 JLM431 JLY687 JLM299 JLY743 JLM415 JLM275 JLM275 JLM331	JLM434 JLM290 JLM454 JLM422 JLM386 JLM427 JLM387 JLM423 JLM455 JLM291	JLM266 JLM460 JLM862 JLM410 JLM438 JLM439 JLM411 JLM863 JLM459
14 1 JLM370 2 JLM342 3 JLM418 4 JYE486 5 JLY770 6 JYE526 7 JLY750 8 JYE614 9 JLY722 10 JYE590 11 JLY798 12 JYE598 13 JLY754 14 JLY755 15 JYE599 16 JLY799 17 JYE591 18 JLY723 19 JYE615 20 JLY823 21 JYE527 22 JLY771 23 JYE487	15 JLM270 JLM320 JYE478 JYE438 JLY738 JLY762 JYE574 JLY726 JYE602 JYE602 JYE603 JLY847 JYE623 JLY727 JYE575 JLY763 JLY740 JYE543 JLY740 JYE439 JYE479	16 JLM310 JLM406 JLY780 JYE470 JLY858 JYE446 JLY774 JYE558 JLY880 JYE582 JLY714 JYE626 JLY806 JLY807 JYE627 JYE755 JYE583 JLY875 JYE583 JLY775 JYE583 JLY775 JYE447	JLM402 JLM302 JLM366 JYE462 JYE430 JLY734 JYE586 JYE586 JYE586 JYE595 JLY710 JYE597 JLY711 JYE597 JLY787 JLY787 JLY787 JYE567 JLY827 JYE535 JLY735 JYE431 JYE431 JYE436	JLM362 JLM346 JLY736 JYE454 JLY810 JYE510 JLY718 JYE550 JLY790 JLY791 JYE579 JLY843 JYE571 JLY819 JYE551 JLY883 JYE511 JLY881 JYE511 JLY881 JYE511	JLM326 JLM278 JLY690 JYE518 JYE502 JYE606 JLY862 JYE554 JLY803 JYE619 JLY835 JYE663 JLY803 JYE555 JLY803 JYE507 JYE507 JYE509 JYE519	JLM306 JLY870 JLY758 JYE494 JLY814 JYE610 JLY730 JYE538 JLY782 JLY751 JYE547 JLY783 JYE539 JLY731 JYE611 JLY815 JYE495 JLY759 JLY871	JLM442 JLY860 JLY794 JYE498 JYE506 JYE510 JYE530 JYE531 JLY855 JYE451 JLY855 JYE451 JYE507 JYE499 JLY699 JLY699 JLY793 JLY856	JLM286 JLM450 JLM294 JLY812 JLY694 JYE522 JLY702 JYE434 JLY746 JLY747 JYE443 JLY839 JYE435 JLY703 JYE523 JLY695 JLY752 JLM295 JLM295	JLM382 JLM446 JLY874 JLY866 JLY778 JYE456 JYE474 JYE482 JYE490 JYE495 JYE459 JLY779 JLY875 JLY875 JLM447	JLM394 JLM330 JLM274 JLM414 JLY742 JLM498 JLM430 JLM463 JLM463 JLM431 JLY687 JLM299 JLY743 JLM415 JLM275 JLM275 JLM331	JLM434 JLM290 JLM454 JLM422 JLM386 JLM427 JLM387 JLM423 JLM455 JLM291	JLM266 JLM460 JLM862 JLM410 JLM438 JLM439 JLM411 JLM863 JLM459

Fitzpatrick C19 Bundle Type Map

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
1	0	0	0	0	0	0	0	0	1	1	1	2	1	1	2	1	1	1	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
3	0	0	0	0	2	1	1	2	3	1	3	1	1	1	1	3	1	3	2	1	1	2	0	0	0	0
4	0	0	0	1	1	4	4	3	9	9	9	9	9	9	9	9	9	9	3	4	4	1	1	0	0	0
5	0	0	1	1	1	3	3	7	3	10	4	10	5	5	10	4	10	3	7	3	3	1	1	1	0	0
6	0	0	1	4	3	3	8	8	8	3	10	3	7	7	3	10	3	8	8	8	3	3	4	1	0	0
7	0	0	2	4	3	8	3	6	4	7	3	7	3	3	7	3	7	4	6	3	8	3	4	2	0	0
8	0	1	1	3	7	8	6	4	7	3	7	3	6	6	3	7	3	7	4	6	8	7	3	1	1	0
9	2	1	3	9	3	8	5	7	3	7	4	7	3	3	7	4	7	3	7	5	8	3	9	3	1	2
10	1	1	1	9	10	5	7	3	7	5	7	3	7	7	3	7	5	7	3	7	5	10	9	1	1	1
11	1	1	3	9	4	10	3	7	4	7	3	6	3	3	6	3	7	4	7	3	10	4	9	3	1	1
12	1	1	1	9	10	4	7	3	7	4	6	3	7	7	4	6	3	7	3	7	4	10	9	1	1	1
13	1	1	1	9	3	7	3	6	3	7	3	7	3	3	7	3	7	3	6	3	7	3	9	1	1	1
14	1	1	1	9	3	7	3	6	3	7	3	7	3	3	7	3	7	3	6	3	7	3	9	1	1	1
15	1	1	1	9	10	4	7	3	7	3	6	4	7	7	4	6	3	7	3	7	4	10	9	1	1	1
16	1	1	3	9	4	10	3	7	4	7	3	6	3	3	6	3	7	4	7	3	10	4	9	3	1	1
17	1	1	1	9	10	5	7	3	7	5	7	3	7	7	3	7	5	7	3	7	5	10	9	1	1	1
18	2	1	3	9	3	8	5	7	3	7	4	7	3	3	7	4	7	3	7	5	8	3	9	3	1	2
19	0	1	1	3	7	8	6	4	7	3	7	3	6	6	3	7	3	7	4	6	8	7	3	1	1	0
20	0	0	2	4	3	8	3	6	4	7	3	7	3	3	7	3	7	4	6	3	8	3	4	2	0	0
21	0	0	1	4	3	3	8	8	8	3	10	3	7	7	3	10	3	8	8	8	3	3	4	1	0	0
22	0	0	1	1	1	3	3	7	3	10	4	10	5	5	10	4	10	3	7	3	3	1	1	1	0	0
23	0	0	0	1	1	4	4	3	9	9	9	9	9	9	9	9	9	9	3	4	4	1	1	0	0	0
24	0	0	0	0	2	1	1	2	3	1	3	1	1	1	1	3	1	3	2	1	1	2	0	0	0	0
25	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	1	1	1	2	- 1	- 1	2	1	1	1	0	0	0	0	0	0	0	0

Fitzpatrick C20 Bundle ID Map

1	2	3	4	5	6	7	8	9	10	11	12	13
1 .	-		4					JLY881	JLY813	JLY773	JLY817	JLY825
2							JLY761	JLY878	JLY689	JLY869	JLY720	JLY745
3				JLY785	JLY769	JLY709	JLY693	JYE577	JYE477	JYE581	JYE521	JYE433
4			JLY816	JLY756	JLY713	JYE561	JYE541	JYM421	JYM429	JYM437	JYM445	JYM517
5		JLY701	JLY801	JLY852	JYE605	JYE461	JYM461	JYE457	JYM525	JYE493	JYM533	JYE481
6		JLY733	JLY809	JYE609	JYE469	JYM453	JYM541	JYM549	JYE505	JYM469	JYE509	JYM477
7		JLY805	JYE545	JYE473	JYM457	JYE441	JYM557	JYE569	JYM485	JYE565	JYM493	JYE589
8	JLY833	JLY697	JYE585	JYM465	JYM545	JYM561	JYE465	JYM501	JYE621	JYM509	JYE597	JYM565
9 JLY717	JLY861	JYE529	JYM425	JYE453	JYM553	JYE593	JYM505	JYE437	JYM573	JYE533	JYM581	JYE617
10 JLY837	JLY777	JYE485	JYM433	JYM529	JYE501	JYM489	JYE625	JYM577	JYE445	JYM589	JYE549	JYM597
11 JLY781	JLY865	JYE537	JYM441	JYE497	JYM473	JYE557	JYM513	JYE573	JYM593	JLY765	JYM605	JLY748
12 JLY789	JLY741	JYE517	JYM449	JYM537	JYE513	JYM497	JYE601	JYM585	JYE553	JYM609	JYE429	JYM613
13 JLY729	JLY757	JYE449	JYM521	JYE489	JYM481	JYE525	JYM569	JYE613	JYM601	JLY685	JYM617	JLY873
14 JLY795	JLY760	JYE452	JYM524	JYE492	JYM484	JYE528	JYM572	JYE616	JYM604	JLY688	JYM620	JLY876
15 JLY792	JLY744	JYE520	JYM452	JYM540	JYE516	JYM500	JYE604	JYM588	JYE556	JYM612	JYE432	JYM616
16 JLY820	JLY868	JYE540	JYM444	JYE500	JYM476	JYE560	JYM516	JYE576	JYM596	JLY766	JYM608	JLY768
17 JLY800	JLY708	JYE488	JYM436	JYM532	JYE504	JYM492	JYE628	JYM580	JYE448	JYM592	JYE552	JYM600
18 JLY840	JLY864	JYE532	JYM428	JYE456	JYM556	JYE596	JYM508	JYE440	JYM576	JYE536	JYM584	JYE620
19	JLY836	JLY700	JYE588	JYM468	JYM548	JYM564	JYE468	JYM504	JYE624	JYM512	JYE600	JYM568
20	02.000	JLY808	JYE548	JYE476	JYM460	JYE444	JYM560	JYE572	JYM488	JYE568	JYM496	JYE592
21		JLY804	JLY706	JYE612	JYE472	JYM456	JYM544	JYM552	JYE508	JYM472	JYE512	JYM480
22		JLY776	JLY732	JLY784	JYE608	JYE464	JYM464	JYE460	JYM528	JYE496	JYM536	JYE484
23			JLY707	JLY772	JLY788	JYE564	JYE544	JYM424	JYM432	JYM440	JYM448	JYM520
24			02	JLY724	JLY819	JLY704	JLY696	JYE580	JYE480	JYE584	JYE524	JYE436
25							JLY764	JLY877	JLY692	JLY872	JLY796	JLY705
26								JLY884	JLY818	JLY850	JLY716	JLY828
Fitzpatrick C20	Bundle ID	Man										
		iviap										
14			17	18	19	20	21	22	23	24	25	26
14 1 JLY786	15	16	17 JLY814	18 JLY826	19	20	21	22	23	24	25	26
1 JLY786	15 JLY714	16 JLY882	JLY814	JLY826		20	21	22	23	24	25	26
1 JLY786 2 JLY746	15 JLY714 JLY812	16 JLY882 JLY870	JLY814 JLY690	JLY826 JLY880	JLY762				23	24	25	26
1 JLY786 2 JLY746 3 JYE434	15 JLY714 JLY812 JYE522	16 JLY882 JLY870 JYE582	JLY814 JLY690 JYE478	JLY826 JLY880 JYE578	JLY762 JLY694	JLY734	JLY774	JLY722		24	25	26
1 JLY786 2 JLY746 3 JYE434 4 JYM518	15 JLY714 JLY812 JYE522 JYM446	16 JLY882 JLY870 JYE582 JYM438	JLY814 JLY690 JYE478 JYM430	JLY826 JLY880 JYE578 JYM422	JLY762 JLY694 JYE542	JLY734 JYE562	JLY774 JLY730	JLY722 JLY770	JLY794		25	26
1 JLY786 2 JLY746 3 JYE434	15 JLY714 JLY812 JYE522	16 JLY882 JLY870 JYE582	JLY814 JLY690 JYE478 JYM430 JYM526	JLY826 JLY880 JYE578 JYM422 JYE458	JLY762 JLY694 JYE542 JYM462	JLY734 JYE562 JYE462	JLY774 JLY730 JYE606	JLY722		JLY846	25	26
1 JLY786 2 JLY746 3 JYE434 4 JYM518 5 JYE482	15 JLY714 JLY812 JYE522 JYM446 JYM534	16 JLY882 JLY870 JYE582 JYM438 JYE494	JLY814 JLY690 JYE478 JYM430	JLY826 JLY880 JYE578 JYM422	JLY762 JLY694 JYE542	JLY734 JYE562 JYE462	JLY774 JLY730 JYE606	JLY722 JLY770 JLY860	JLY794 JLY802		25	26
1 JLY786 2 JLY746 3 JYE434 4 JYM518 5 JYE482 6 JYM478	15 JLY714 JLY812 JYE522 JYM446 JYM534 JYE510	16 JLY882 JLY870 JYE582 JYM438 JYE494 JYM470	JLY814 JLY690 JYE478 JYM430 JYM526 JYE506	JLY826 JLY880 JYE578 JYM422 JYE458 JYM550	JLY762 JLY694 JYE542 JYM462 JYM542	JLY734 JYE562 JYE462 JYM454	JLY774 JLY730 JYE606 JYE470 JYM458	JLY722 JLY770 JLY860 JYE610	JLY794 JLY802 JLY810	JLY846 JLY798	25 JLY834	26
1 JLY786 2 JLY746 3 JYE434 4 JYM518 5 JYE482 6 JYM478 7 JYE590	15 JLY714 JLY812 JYE522 JYM446 JYM534 JYE510 JYM494	16 JLY882 JLY870 JYE582 JYM438 JYE494 JYM470 JYE566	JLY814 JLY690 JYE478 JYM430 JYM526 JYE506 JYM486	JLY826 JLY880 JYE578 JYM422 JYE458 JYM550 JYE570	JLY762 JLY694 JYE542 JYM462 JYM542 JYM558	JLY734 JYE562 JYE462 JYM454 JYE442	JLY774 JLY730 JYE606 JYE470 JYM458	JLY722 JLY770 JLY860 JYE610 JYE474	JLY794 JLY802 JLY810 JYE546	JLY846 JLY798 JLY806 JLY698		26 JLY718
1 JLY786 2 JLY746 3 JYE434 4 JYM518 5 JYE482 6 JYM478 7 JYE590 8 JYM566	15 JLY714 JLY812 JYE522 JYM446 JYM534 JYE510 JYM494 JYE598	16 JLY882 JLY870 JYE582 JYM438 JYE494 JYM470 JYE566 JYM510 JYE534	JLY814 JLY690 JYE478 JYM430 JYM526 JYE506 JYM486 JYE622	JLY826 JLY880 JYE578 JYM422 JYE458 JYM550 JYE570 JYM502	JLY762 JLY694 JYE542 JYM462 JYM542 JYM558 JYE466	JLY734 JYE562 JYE462 JYM454 JYE442 JYM562 JYE594	JLY774 JLY730 JYE606 JYE470 JYM458 JYM546	JLY722 JLY770 JLY860 JYE610 JYE474 JYM466	JLY794 JLY802 JLY810 JYE546 JYE586	JLY846 JLY798 JLY806 JLY698	JLY834	JLY718
1 JLY786 2 JLY746 3 JYE434 4 JYM518 5 JYE482 6 JYM478 7 JYE590 8 JYM566 9 JYE618	15 JLY714 JLY812 JYE522 JYM446 JYM534 JYE510 JYM494 JYE598 JYM582	16 JLY882 JLY870 JYE582 JYM438 JYE494 JYM470 JYE566 JYM510	JLY814 JLY690 JYE478 JYM430 JYM526 JYE506 JYM486 JYE622 JYM574	JLY826 JLY880 JYE578 JYM422 JYE458 JYM550 JYE570 JYM502 JYE438	JLY762 JLY694 JYE542 JYM462 JYM542 JYM558 JYE466 JYM506	JLY734 JYE562 JYE462 JYM454 JYE442 JYM562	JLY774 JLY730 JYE606 JYE470 JYM458 JYM546 JYM554	JLY722 JLY770 JLY860 JYE610 JYE474 JYM466 JYE454	JLY794 JLY802 JLY810 JYE546 JYE586 JYM426	JLY846 JLY798 JLY806 JLY698 JYE530 JYE486	JLY834 JLY862	
1 JLY786 2 JLY746 3 JYE434 4 JYM518 5 JYE482 6 JYM478 7 JYE590 8 JYM566 9 JYE618 10 JYM598	15 JLY714 JLY812 JYE522 JYM446 JYM534 JYE510 JYM494 JYE598 JYM582 JYE550	16 JLY882 JLY870 JYE582 JYM438 JYE494 JYM470 JYE566 JYM510 JYE534 JYM590	JLY814 JLY690 JYE478 JYM430 JYM526 JYE506 JYM486 JYE622 JYM574 JYE446	JLY826 JLY880 JYE578 JYM422 JYE458 JYM550 JYE570 JYM502 JYE438 JYM578	JLY762 JLY694 JYE542 JYM462 JYM542 JYM558 JYE466 JYM506 JYE626	JLY734 JYE562 JYE462 JYM454 JYE442 JYM562 JYE594 JYM490	JLY774 JLY730 JYE606 JYE470 JYM458 JYM546 JYM554 JYE502 JYM474	JLY722 JLY770 JLY860 JYE610 JYE474 JYM466 JYE454 JYM530	JLY794 JLY802 JLY810 JYE546 JYE586 JYM426 JYM434	JLY846 JLY798 JLY806 JLY698 JYE530 JYE486 JYE538	JLY834 JLY862 JLY778	JLY718 JLY838
1 JLY786 2 JLY746 3 JYE434 4 JYM518 5 JYE482 6 JYM478 7 JYE590 8 JYM566 9 JYE618 10 JYM598 11 JLY780	15 JLY714 JLY812 JYE522 JYM446 JYE510 JYE510 JYM494 JYE598 JYM582 JYE550 JYM606	16 JLY882 JLY870 JYE582 JYM438 JYE494 JYM470 JYE566 JYM510 JYE534 JYM590 JLY736	JLY814 JLY690 JYE478 JYM430 JYM526 JYE506 JYM486 JYE622 JYM574 JYE446 JYE446 JYM594	JLY826 JLY880 JYE578 JYM422 JYE458 JYM550 JYE570 JYE438 JYM578 JYE438 JYM578 JYE574	JLY762 JLY694 JYE542 JYM462 JYM558 JYE466 JYM506 JYE626 JYM514	JLY734 JYE562 JYE462 JYM454 JYE442 JYM562 JYE594 JYM490 JYE558	JLY774 JLY730 JYE606 JYE470 JYM458 JYM546 JYM554 JYE502 JYM474	JLY722 JLY770 JLY860 JYE610 JYE474 JYM466 JYE454 JYM530 JYE498 JYM538	JLY794 JLY802 JLY810 JYE546 JYE586 JYM426 JYM434 JYM444	JLY846 JLY798 JLY806 JLY698 JYE530 JYE486 JYE538 JYE518	JLY834 JLY862 JLY778 JLY866	JLY718 JLY838 JLY782
1 JLY786 2 JLY746 3 JYE434 4 JYM518 5 JYE482 6 JYM478 7 JYE590 8 JYM566 9 JYE618 10 JYM598 11 JLY780 12 JYM614	15 JLY714 JLY812 JYE522 JYM446 JYM534 JYE510 JYM494 JYE598 JYM582 JYE550 JYM606 JYE430	16 JLY882 JLY870 JYE582 JYM438 JYE494 JYM470 JYE566 JYM510 JYE534 JYM590 JLY736 JYM610	JLY814 JLY690 JYE478 JYM430 JYM526 JYE506 JYM486 JYE622 JYM574 JYE446 JYE554	JLY826 JLY880 JYE578 JYM422 JYE458 JYM550 JYE570 JYM502 JYE438 JYM578 JYE574 JYM586	JLY762 JLY694 JYE542 JYM462 JYM5542 JYM558 JYE466 JYM506 JYE626 JYM514 JYE602	JLY734 JYE562 JYE462 JYM454 JYE442 JYM562 JYE594 JYM490 JYE558 JYM498	JLY774 JLY730 JYE606 JYE470 JYM458 JYM546 JYM554 JYE502 JYM474 JYE514	JLY722 JLY770 JLY860 JYE610 JYE474 JYM466 JYE454 JYM538 JYE498 JYE490	JLY794 JLY802 JLY810 JYE546 JYE586 JYM426 JYM434 JYM442 JYM450	JLY846 JLY798 JLY806 JLY698 JYE530 JYE538 JYE538 JYE518 JYE5450	JLY834 JLY862 JLY778 JLY866 JLY742	JLY718 JLY838 JLY782 JLY790
1 JLY786 2 JLY746 3 JYE434 4 JYM518 5 JYE482 6 JYM478 7 JYE590 8 JYM566 9 JYE618 10 JYM598 11 JLY780 12 JYM614 13 JLY874	15 JLY714 JLY812 JYE522 JYM446 JYM534 JYE510 JYM494 JYE598 JYM582 JYE550 JYM606 JYE430 JYM618	16 JLY882 JLY870 JYE582 JYM438 JYE494 JYM470 JYE566 JYM510 JYE534 JYM590 JLY736 JYM610 JLY686	JLY814 JLY690 JYE478 JYM430 JYM526 JYE506 JYM486 JYE622 JYM574 JYE446 JYM594 JYM594 JYM594 JYM602	JLY826 JLY880 JYE578 JYM422 JYE458 JYM550 JYE570 JYM502 JYE438 JYM578 JYE574 JYE574 JYE574 JYE614	JLY762 JLY694 JYE542 JYM462 JYM558 JYE466 JYM506 JYE626 JYM514 JYE602 JYM570	JLY734 JYE562 JYE462 JYM454 JYE442 JYM562 JYE594 JYM490 JYE558 JYM498 JYE526	JLY774 JLY730 JYE606 JYE470 JYM458 JYM554 JYE502 JYM474 JYE514 JYE514 JYM482 JYM482	JLY722 JLY770 JLY860 JYE610 JYE474 JYM466 JYE454 JYM538 JYE498 JYE490	JLY794 JLY802 JLY810 JYE546 JYE586 JYM426 JYM442 JYM442 JYM450 JYM522	JLY846 JLY798 JLY806 JLY698 JYE530 JYE538 JYE538 JYE518 JYE5450	JLY834 JLY862 JLY778 JLY866 JLY742 JLY758	JLY718 JLY838 JLY782 JLY790 JLY702
1 JLY786 2 JLY746 3 JYE434 4 JYM548 5 JYE482 6 JYM478 7 JYE590 8 JYM566 9 JYE618 10 JYM598 11 JLY780 12 JYM614 13 JLY874 14 JLY848	15 JLY714 JLY812 JYE522 JYM446 JYM534 JYE510 JYM494 JYE598 JYM582 JYE550 JYM606 JYE430 JYM618 JYM618 JYM619	16 JLY882 JLY870 JYE582 JYM438 JYE494 JYM590 JYM510 JYE534 JYM590 JLY736 JYM610 JLY686 JLY686	JLY814 JLY690 JYE478 JYM430 JYM526 JYE506 JYE622 JYM574 JYE446 JYM594 JYE554 JYM602 JYM602 JYM603	JLY826 JLY880 JYE578 JYM422 JYE458 JYM550 JYE570 JYM502 JYE438 JYM578 JYE574 JYM586 JYE614 JYE614	JLY762 JLY694 JYE542 JYM462 JYM558 JYE466 JYM506 JYE626 JYM514 JYE602 JYM570 JYM570	JLY734 JYE562 JYE462 JYM454 JYE442 JYM562 JYE594 JYM490 JYE558 JYM498 JYE526 JYE527	JLY774 JLY730 JYE606 JYE470 JYM458 JYM554 JYE502 JYM474 JYE514 JYE514 JYM482 JYM482	JLY722 JLY770 JLY860 JYE610 JYE474 JYM456 JYE454 JYM538 JYE498 JYM538 JYE490 JYE491	JLY794 JLY802 JLY810 JYE546 JYE586 JYM426 JYM434 JYM4450 JYM450 JYM522 JYM523	JLY846 JLY798 JLY806 JLY698 JYE530 JYE538 JYE518 JYE450 JYE451 JYE451	JLY834 JLY862 JLY778 JLY769 JLY758 JLY759	JLY718 JLY838 JLY782 JLY790 JLY702 JLY719
1 JLY786 2 JLY746 3 JYE434 4 JYM518 5 JYE482 6 JYM478 7 JYE590 8 JYM566 9 JYE618 10 JYM598 11 JLY780 12 JYM614 13 JLY848 15 JYM615	15 JLY714 JLY812 JYE522 JYM446 JYM534 JYE510 JYM494 JYE598 JYM582 JYE550 JYM606 JYE430 JYM618 JYM618 JYM619 JYE431	16 JLY882 JLY870 JYE582 JYM438 JYE494 JYM510 JYE534 JYM510 JLY736 JYM610 JLY686 JLY687 JYM611	JLY814 JLY690 JYE478 JYM430 JYM526 JYE506 JYE622 JYM574 JYE446 JYM594 JYE554 JYM602 JYM603 JYE555	JLY826 JLY880 JYE578 JYM422 JYE458 JYM550 JYE570 JYE570 JYE574 JYM578 JYM578 JYM586 JYE614 JYE615 JYM587	JLY762 JLY694 JYE542 JYM462 JYM542 JYM558 JYE466 JYM506 JYE626 JYM514 JYE602 JYM570 JYM571 JYE603	JLY734 JYE562 JYE462 JYM454 JYE442 JYM562 JYE594 JYM490 JYE558 JYM498 JYE527 JYM499	JLY774 JLY730 JYE606 JYE470 JYM458 JYM554 JYE502 JYM474 JYE514 JYM482 JYM483 JYE515	JLY722 JLY770 JLY860 JYE610 JYE474 JYM530 JYE494 JYM538 JYE490 JYE491 JYM539	JLY794 JLY802 JLY810 JYE546 JYE586 JYM426 JYM442 JYM452 JYM523 JYM523 JYM523	JLY846 JLY798 JLY806 JLY698 JYE530 JYE486 JYE518 JYE450 JYE451 JYE519 JYE519	JLY834 JLY862 JLY778 JLY866 JLY742 JLY758 JLY759 JLY743	JLY718 JLY838 JLY782 JLY790 JLY702 JLY719 JLY791
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1 JLY786 2 JLY746 3 JYE434 4 JYM518 5 JYE482 6 JYM478 7 JYE590 8 JYM566 9 JYE618 10 JYM598 11 JLY780 12 JYM614 13 JLY874 14 JLY848 15 JYM615 16 JLY875 17 JYM599	15 JLY714 JLY812 JYE522 JYM446 JYM534 JYE510 JYM494 JYE598 JYM582 JYE550 JYM606 JYE430 JYM618 JYM618 JYM619 JYE431 JYM607 JYE551	16 JLY882 JLY870 JYE582 JYM438 JYE494 JYM510 JYE534 JYM590 JLY736 JYM610 JLY686 JLY687 JYM611 JLY687 JYM611	JLY814 JLY690 JYE478 JYM430 JYM526 JYE506 JYM576 JYE622 JYM574 JYE446 JYM594 JYE554 JYM602 JYM603 JYE555 JYM595 JYE447	JLY826 JLY880 JYE578 JYM422 JYE458 JYM550 JYE570 JYM502 JYE438 JYM574 JYE614 JYE615 JYM587 JYE575 JYM587	JLY762 JLY694 JYE542 JYM562 JYM558 JYE466 JYE626 JYM514 JYE602 JYM570 JYM571 JYE603 JYM575 JYM575 JYM575	JLY734 JYE562 JYE462 JYM454 JYE442 JYM562 JYE598 JYM498 JYE558 JYM498 JYE526 JYE527 JYM499 JYE559 JYM491	JLY774 JLY774 JLY730 JYE606 JYE470 JYM554 JYM554 JYE504 JYM474 JYE514 JYM482 JYM483 JYE515 JYM475 JYE503 JYM555	JLY722 JLY770 JLY860 JYE610 JYE474 JYM466 JYE498 JYM538 JYE490 JYE491 JYM539 JYE499 JYM539 JYM539	JLY794 JLY802 JLY810 JYE546 JYE586 JYM426 JYM444 JYM450 JYM522 JYM523 JYM451 JYM443	JLY846 JLY798 JLY806 JLY698 JYE530 JYE486 JYE538 JYE518 JYE450 JYE519 JYE539 JYE487	JLY834 JLY862 JLY778 JLY866 JLY742 JLY758 JLY759 JLY779 JLY779	JLY718 JLY838 JLY782 JLY790 JLY702 JLY719 JLY799 JLY839
1 JLY786 2 JLY746 3 JYE434 4 JYM518 5 JYE482 6 JYM478 7 JYE590 8 JYM566 9 JYE618 10 JYM598 11 JLY780 12 JYM614 13 JLY874 14 JLY848 15 JYM615 16 JLY875 17 JYM599 18 JYE619 19 JYM567	15 JLY714 JLY812 JYE522 JYM446 JYM534 JYE510 JYM494 JYE598 JYM582 JYE550 JYM606 JYE430 JYM618 JYM618 JYM619 JYE431 JYM607 JYE551 JYM583	16 JLY882 JLY870 JYE582 JYM438 JYE494 JYM510 JYE566 JYM510 JYE534 JYM590 JLY736 JYM610 JLY686 JLY687 JYM611 JLY767 JYM611 JLY767 JYM591 JYE535	JLY814 JLY690 JYE478 JYM430 JYM526 JYE506 JYM574 JYE622 JYM574 JYE554 JYM602 JYM603 JYE555 JYM595 JYM595 JYM595 JYE447 JYE575	JLY826 JLY880 JYE578 JYM422 JYE458 JYM550 JYE570 JYM578 JYE574 JYM586 JYE614 JYE615 JYM587 JYE575 JYM587 JYE575 JYM5879 JYE439	JLY762 JLY694 JYE542 JYM562 JYM558 JYE466 JYM506 JYE602 JYM570 JYM570 JYM571 JYE603 JYM515 JYE607 JYM515 JYE627 JYM507	JLY734 JYE562 JYE462 JYM454 JYE442 JYM562 JYE598 JYM490 JYE558 JYM498 JYE526 JYE527 JYM499 JYE559 JYM491 JYE559	JLY774 JLY774 JLY730 JYE606 JYE470 JYM554 JYM554 JYE504 JYM474 JYE514 JYM482 JYM483 JYE515 JYM475 JYE503 JYM555	JLY722 JLY770 JLY860 JYE610 JYE474 JYM530 JYE498 JYM538 JYE490 JYE491 JYM539 JYE499 JYM531 JYE499 JYM531 JYE455	JLY794 JLY802 JLY810 JYE546 JYE586 JYM426 JYM450 JYM522 JYM523 JYM551 JYM443 JYM435 JYM435	JLY846 JLY798 JLY806 JLY698 JYE538 JYE538 JYE518 JYE450 JYE451 JYE539 JYE487 JYE539	JLY834 JLY862 JLY766 JLY742 JLY758 JLY759 JLY743 JLY867 JLY779 JLY863	JLY718 JLY838 JLY782 JLY790 JLY702 JLY719 JLY799 JLY839
1 JLY786 2 JLY746 3 JYE434 4 JYM518 5 JYE482 6 JYM478 7 JYE590 8 JYM566 9 JYE618 10 JYM598 11 JLY780 12 JYM614 13 JLY874 14 JLY848 15 JYM615 16 JLY875 17 JYM599 18 JYE619	15 JLY714 JLY812 JYE522 JYM446 JYM534 JYE510 JYM582 JYE550 JYM606 JYE430 JYM618 JYM619 JYE431 JYM607 JYE551 JYM583 JYM583 JYE599	16 JLY882 JLY870 JYE582 JYM438 JYE494 JYM470 JYE566 JYM510 JYE534 JYM590 JLY736 JYM610 JLY686 JLY687 JYM611 JLY767 JYM591 JYE535 JYM511	JLY814 JLY690 JYE478 JYM430 JYM526 JYE506 JYM486 JYE622 JYM574 JYE554 JYM602 JYM603 JYE555 JYM595 JYE447 JYM595 JYE447 JYM575 JYE623	JLY826 JLY880 JYE578 JYM422 JYE458 JYM550 JYE570 JYM578 JYE574 JYM586 JYE614 JYM587 JYE575 JYM587 JYE575 JYM587 JYE575 JYM587 JYE575 JYM579 JYE439 JYE439	JLY762 JLY694 JYE542 JYM542 JYM558 JYE466 JYM506 JYM514 JYE602 JYM570 JYM571 JYE603 JYM515 JYE627 JYM507 JYM507 JYM507	JLY734 JYE562 JYE462 JYM454 JYM562 JYE594 JYM490 JYE558 JYM498 JYE527 JYM499 JYE559 JYM491 JYE595 JYM491	JLY774 JLY730 JYE606 JYE470 JYM554 JYM554 JYE502 JYM474 JYE514 JYM482 JYM483 JYE515 JYM475 JYM555 JYM547 JYM557	JLY722 JLY770 JLY860 JYE474 JYM466 JYE454 JYM530 JYE498 JYM538 JYE490 JYE491 JYM539 JYM531 JYE495 JYM531	JLY794 JLY802 JLY810 JYE546 JYE586 JYM426 JYM432 JYM450 JYM522 JYM523 JYM451 JYM4435 JYM435 JYM427 JYE587	JLY846 JLY798 JLY806 JLY698 JYE530 JYE538 JYE518 JYE450 JYE451 JYE519 JYE531 JYE531 JYE531 JLY699	JLY834 JLY862 JLY766 JLY742 JLY758 JLY759 JLY743 JLY867 JLY779 JLY863	JLY718 JLY838 JLY782 JLY790 JLY702 JLY719 JLY799 JLY839
1 JLY786 2 JLY746 3 JYE434 4 JYM548 5 JYE482 6 JYM478 7 JYE590 8 JYM566 9 JYE618 10 JYM598 11 JLY780 12 JYM614 13 JLY874 14 JLY848 15 JYM615 16 JLY875 17 JYM599 18 JYE619 19 JYM567 20 JYE591	15 JLY714 JLY812 JYE522 JYM446 JYM534 JYE510 JYM598 JYM582 JYE550 JYM606 JYE430 JYM618 JYM619 JYE431 JYM607 JYE551 JYM583 JYE559 JYM583 JYE599 JYM495	16 JLY882 JLY870 JYE582 JYM438 JYE494 JYM510 JYE534 JYM510 JLY736 JLY686 JLY687 JYM611 JLY767 JYM591 JYE535 JYM591 JYE535 JYM591 JYE535	JLY814 JLY690 JYE478 JYM430 JYM526 JYE506 JYE506 JYE622 JYM574 JYE554 JYM692 JYM602 JYM603 JYE555 JYM595 JYE447 JYM575 JYE423 JYM575 JYE423 JYM575	JLY826 JLY880 JYE578 JYM422 JYE458 JYM550 JYE570 JYE574 JYE574 JYE615 JYM586 JYE615 JYM575 JYE575 JYM575 JYE439 JYE571	JLY762 JLY694 JYE542 JYM462 JYM558 JYE466 JYM506 JYE626 JYM514 JYE602 JYM571 JYE603 JYM515 JYE67 JYM507 JYM507 JYM507	JLY734 JYE562 JYE462 JYM454 JYE442 JYM562 JYE594 JYE558 JYM498 JYE526 JYE527 JYM499 JYE559 JYM491 JYE555 JYM491 JYE555 JYM491	JLY774 JLY730 JYE606 JYE470 JYM554 JYM554 JYE502 JYM474 JYE514 JYM482 JYM483 JYE515 JYM475 JYM555 JYM547 JYM557	JLY722 JLY770 JLY860 JYE610 JYE474 JYM530 JYE498 JYM538 JYE490 JYE491 JYM539 JYM531 JYE455 JYM547	JLY794 JLY802 JLY810 JYE546 JYM426 JYM434 JYM450 JYM522 JYM523 JYM451 JYM435 JYM437 JYM437 JYM437 JYM437	JLY846 JLY798 JLY806 JLY698 JYE530 JYE538 JYE518 JYE450 JYE451 JYE519 JYE537 JYE531 JLY699 JLY807	JLY834 JLY862 JLY766 JLY742 JLY758 JLY759 JLY743 JLY867 JLY779 JLY863	JLY718 JLY838 JLY782 JLY790 JLY702 JLY719 JLY799 JLY839
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1 JLY786 2 JLY746 3 JYE434 4 JYM518 5 JYE482 6 JYM478 7 JYE590 8 JYM566 9 JYE618 10 JYM598 11 JLY780 12 JYM614 13 JLY874 14 JLY848 15 JYM615 16 JLY875 17 JYM599 18 JYE619 19 JYM591 21 JYM479 22 JYE483	15 JLY714 JLY812 JYE522 JYM446 JYM534 JYE510 JYM584 JYE550 JYM606 JYE430 JYM619 JYE431 JYM607 JYE551 JYM583 JYE559 JYM583 JYE559 JYM495 JYE511 JYM535	16 JLY882 JLY870 JYE582 JYM438 JYE494 JYM470 JYE566 JYM510 JYE534 JYM590 JLY736 JYM610 JLY686 JLY687 JYM611 JLY767 JYM591 JYE535 JYM511 JYE567 JYM511 JYE567 JYM517 JYE567	JLY814 JLY690 JYE478 JYM430 JYM526 JYE506 JYM526 JYE622 JYM574 JYE446 JYM594 JYE554 JYM602 JYM603 JYE555 JYM595 JYE447 JYM595 JYE447 JYM576 JYE623 JYM487 JYE507 JYM527	JLY826 JLY880 JYE578 JYM422 JYE458 JYM550 JYE570 JYM502 JYE438 JYM586 JYE614 JYE615 JYM587 JYE575 JYM579 JYE439 JYE503 JY	JLY762 JLY694 JYE542 JYM562 JYM558 JYE466 JYE602 JYM514 JYE602 JYM571 JYE603 JYM575 JYE607 JYM507 JYM507 JYM559 JYM559 JYM559 JYM559	JLY734 JYE562 JYE462 JYM454 JYE442 JYM562 JYE598 JYM498 JYE526 JYE527 JYM499 JYE559 JYM491 JYE595 JYM563 JYE443 JYE443 JYE443	JLY774 JLY770 JYE606 JYE470 JYM458 JYM554 JYE502 JYM474 JYE514 JYM482 JYM483 JYE515 JYM475 JYE503 JYM555 JYM547 JYM459 JYE471 JYE607	JLY722 JLY770 JLY860 JYE610 JYE454 JYM530 JYE498 JYM538 JYE490 JYE491 JYM531 JYE495 JYE455 JYM67 JYE475 JYE475	JLY794 JLY802 JLY810 JYE546 JYE586 JYM426 JYM450 JYM522 JYM523 JYM451 JYM443 JYM443 JYM443 JYM447 JYE587 JYE547 JLY811 JLY803	JLY846 JLY798 JLY806 JLY698 JYE530 JYE538 JYE518 JYE450 JYE451 JYE539 JYE487 JYE531 JLY699 JLY807 JLY807	JLY834 JLY862 JLY766 JLY742 JLY758 JLY759 JLY743 JLY867 JLY779 JLY863	JLY718 JLY838 JLY782 JLY790 JLY719 JLY719 JLY799 JLY839
1 JLY786 2 JLY746 3 JYE434 4 JYM518 5 JYE482 6 JYM478 7 JYE590 8 JYM566 9 JYE619 10 JYM598 11 JLY780 12 JYM614 13 JLY874 14 JLY848 15 JYM615 16 JLY875 17 JYM599 18 JYE619 19 JYM567 20 JYE591 21 JYM479 22 JYE483 23 JYM519	15 JLY714 JLY812 JYE522 JYM446 JYM534 JYE510 JYM494 JYE598 JYM606 JYE430 JYM618 JYM618 JYM618 JYM607 JYE551 JYM583 JYE559 JYM583 JYE559 JYM495 JYE551 JYM535 JYE551 JYM535 JYM535 JYM535	16 JLY882 JLY870 JYE582 JYM438 JYE494 JYM510 JYE566 JYM510 JYE534 JYM690 JLY736 JYM610 JLY686 JLY687 JYM611 JLY767 JYM591 JYE535 JYM511 JYE567 JYM471 JYE495 JYM439	JLY814 JLY690 JYE478 JYM430 JYM526 JYE506 JYM526 JYE622 JYM574 JYE544 JYM602 JYM602 JYM602 JYM603 JYE555 JYM575 JYE447 JYE557 JYE623 JYM487 JYE507 JYM427 JYM527 JYM431	JLY826 JLY880 JYE578 JYM422 JYE458 JYM550 JYE570 JYM578 JYE574 JYM586 JYE614 JYE615 JYM587 JYE575 JYM579 JYE439 JYM503 JYE571 JYM503 JYE575 JYM503 JYE575 JYM503 JYE575 JYM503 JYE575 JYM503 JYE575 JYM503 JYE575 JYM503 JYE575	JLY762 JLY694 JYE542 JYM562 JYM558 JYE466 JYE626 JYM5104 JYE602 JYM570 JYM571 JYE607 JYM515 JYE627 JYM507 JYE467 JYM559 JYM543 JYM543	JLY734 JYE562 JYE462 JYE442 JYM562 JYE594 JYE598 JYE526 JYE527 JYM499 JYE559 JYM491 JYE559 JYM491 JYE595 JYM491 JYE595 JYM491 JYE443 JYE443 JYE463 JYE463 JYE463	JLY774 JLY770 JYE606 JYE470 JYM458 JYM554 JYE502 JYM474 JYE514 JYM482 JYM483 JYE515 JYM475 JYE503 JYM555 JYM556 JYM557 JYM557 JYE471 JYE607 JLY715	JLY722 JLY770 JLY860 JYE610 JYE474 JYM530 JYE498 JYM538 JYE490 JYE491 JYM531 JYE455 JYM467 JYE475 JYE611 JLY856 JLY771	JLY794 JLY802 JLY810 JYE546 JYE586 JYM426 JYM450 JYM522 JYM523 JYM451 JYM443 JYM443 JYM443 JYM447 JYE587 JYE547 JLY811 JLY803	JLY846 JLY798 JLY806 JLY698 JYE530 JYE538 JYE518 JYE450 JYE451 JYE539 JYE487 JYE531 JLY699 JLY807 JLY807	JLY834 JLY862 JLY766 JLY742 JLY758 JLY759 JLY743 JLY867 JLY779 JLY863	JLY718 JLY838 JLY782 JLY790 JLY719 JLY719 JLY799 JLY839
1 JLY786 2 JLY746 3 JYE434 4 JYM518 5 JYE482 6 JYM478 7 JYE590 8 JYM566 9 JYE618 10 JYM598 11 JLY780 12 JYM614 13 JLY874 14 JLY848 15 JYM615 16 JLY875 17 JYM599 18 JYE619 19 JYM567 20 JYE591 21 JYM479 22 JYE483 23 JYM519 24 JYE435	15 JLY714 JLY812 JYE522 JYM446 JYM534 JYE510 JYM494 JYE598 JYM582 JYE550 JYM606 JYE430 JYM618 JYM618 JYM619 JYE431 JYM607 JYE551 JYM583 JYE559 JYM495 JYE511 JYM535 JYM447 JYE523	16 JLY882 JLY870 JYE582 JYM438 JYE494 JYM510 JYE566 JYM510 JYE534 JYM590 JLY736 JYM610 JLY687 JYM611 JLY767 JYM591 JYE535 JYM591 JYE535 JYM591 JYE545 JYM471 JYE567 JYM471 JYE495 JYM439 JYE583	JLY814 JLY690 JYE478 JYM430 JYM526 JYE506 JYM486 JYE622 JYM574 JYE554 JYM602 JYM603 JYE555 JYM695 JYM575 JYE623 JYM575 JYE623 JYM487 JYM527 JYM527 JYM431 JYE479	JLY826 JLY880 JYE578 JYM422 JYE458 JYM550 JYE570 JYM570 JYE574 JYE574 JYE575 JYM587 JYE575 JYM579 JYE439 JYM503 JYE571 JYM5571 JYM5571 JYM5571 JYE575 JYM5571 JYE575 JYM5571 JYE575	JLY762 JLY694 JYE542 JYM562 JYM558 JYE466 JYM506 JYM570 JYM571 JYE602 JYM571 JYE627 JYM507 JYM507 JYM559 JYM543 JYM543 JYM544 JYM548	JLY734 JYE562 JYE462 JYE442 JYM562 JYE594 JYE598 JYE526 JYE527 JYM499 JYE559 JYM491 JYE559 JYM491 JYE595 JYM491 JYE595 JYM491 JYE443 JYE443 JYE463 JYE463 JYE463	JLY774 JLY770 JYE606 JYE470 JYM458 JYM554 JYE502 JYM474 JYE514 JYM482 JYM483 JYE515 JYM475 JYE503 JYM555 JYM556 JYM557 JYM557 JYE471 JYE607 JLY715	JLY722 JLY770 JLY860 JYE610 JYE474 JYM530 JYE498 JYM538 JYE490 JYE491 JYM531 JYE455 JYM467 JYE475 JYE611 JLY856 JLY771	JLY794 JLY802 JLY810 JYE546 JYE586 JYM426 JYM450 JYM522 JYM523 JYM451 JYM443 JYM443 JYM443 JYM447 JYE587 JYE547 JLY811 JLY803	JLY846 JLY798 JLY806 JLY698 JYE530 JYE538 JYE518 JYE450 JYE451 JYE539 JYE487 JYE531 JLY699 JLY807 JLY807	JLY834 JLY862 JLY766 JLY742 JLY758 JLY759 JLY743 JLY867 JLY779 JLY863	JLY718 JLY838 JLY782 JLY790 JLY719 JLY719 JLY799 JLY839

Fitzpatrick C20 Bundle Type Map

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
1	0	0	0	0	0	0	0	0	4	3	3	3	3	3	3	4	3	3	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	3	4	3	4	3	3	3	3	4	3	4	3	0	0	0	0	0	0	0
3	0	0	0	0	3	3	3	3	7	9	7	7	10	10	7	7	9	7	3	3	3	3	0	0	0	0
4	0	0	0	3	3	3	7	7	14	14	14	14	16	16	14	14	14	14	7	7	3	3	3	0	0	0
5	0	0	3	3	4	6	9	13	9	16	8	16	9	9	16	8	16	9	13	9	6	4	3	4	0	0
6	0	0	3	3	6	9	14	16	16	8	13	8	13	13	8	13	8	16	16	14	9	6	3	3	0	0
7	0	0	3	7	9	14	10	16	7	12	7	12	7	7	12	7	12	7	16	10	14	9	7	3	0	0
8	0	3	3	7	13	16	16	9	12	6	12	7	16	16	7	12	6	12	9	16	16	13	7	3	3	0
9	3	4	7	14	9	16	7	12	10	16	7	16	6	6	16	7	16	10	12	7	16	9	14	7	4	3
10	4	3	9	14	16	8	12	6	16	10	16	7	16	16	7	16	10	16	6	12	8	16	14	9	3	4
11	3	4	7	14	8	13	7	12	7	16	3	16	3	3	16	3	16	7	12	7	13	8	14	7	4	3
12	3	3	7	14	16	8	12	7	16	7	16	10	16	16	10	16	7	16	7	12	8	16	14	7	3	3
13	3	3	10	16	9	13	7	16	6	16	3	16	4	4	16	3	16	6	16	7	13	9	16	10	3	3
14	3	3	10	16	9	13	7	16	6	16	3	16	4	4	16	3	16	6	16	7	13	9	16	10	3	3
15	3	3	7	14	16	8	12	7	16	7	16	10	16	16	10	16	7	16	7	12	8	16	14	7	3	3
16	3	4	7	14	8	13	7	12	7	16	3	16	3	4	16	3	16	7	12	7	13	8	14	7	4	3
17	3	3	9	14	16	8	12	6	16	10	16	7	16	16	7	16	10	16	6	12	8	16	14	9	3	4
18	4	4	7	14	9	16	7	12	10	16	7	16	6	6	16	7	16	10	12	7	16	9	14	7	4	3
19	0	3	3	7	13	16	16	9	12	6	12	7	16	16	7	12	6	12	9	16	16	13	7	3	3	0
20	0	0	3	7	9	14	10	16	7	12	7	12	7	7	12	7	12	7	16	10	14	9	7	3	0	0
21	0	0	3	3	6	9	14	16	16	8	13	8	13	13	8	13	8	16	16	14	9	6	3	3	0	0
22	0	0	3	3	3	6	9	13	9	16	8	16	9	9	16	8	16	9	13	9	6	4	3	3	0	0
23	0	0	0	3	3	3	7	7	14	14	14	14	16	16	14	14	14	14	7	7	3	3	3	0	0	0
24	0	0	0	0	3	3	3	3	7	9	7	7	10	10	7	7	9	7	3	3	4	3	0	0	0	0
25	0	0	0	0	0	0	0	3	4	3	4	3	3	3	3	4	3	4	3	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	4	3	4	3	3	3	4	3	3	3	0	0	0	0	0	0	0	0

The details of the bundle type and bundle names in Cycle 19 reference loading pattern are:

Bundle Type	Bundle Name
1	GE14-P10DNAB405-16GZ-100T-150-T6-2794
2	GE14-P10DNAB405-15G6.0-100T-150-T6-2793
3	GE14-P10DNAB402-10G6.0/4G5.0/1G2.0-100T-150-T6-2905
4	GE14-P10DNAB405-16GZ-100T-150-T6-2906
5	GE14-P10DNAB402-10G6.0/4G5.0/1G2.0-100T-150-T6-2905
6	GNF2-P10DG2B377-13GZ-100T2-150-T6-3073
7	GNF2-P10DG2B379-14GZ-100T2-150-T6-3074
8	GNF2-P10DG2B396-15GZ-100T2-150-T6-3075
9	GNF2-P10DG2B407-6G6.0/6G5.0-100T2-150-T6-3076
10	GNF2-P10DG2B394-13GZ-100T2-150-T6-3077

The details of the bundle type and bundle names in Cycle 20 reference loading pattern are:

Bundle Type	Bundle Name
3	GE14-P10DNAB402-10G6.0/4G5.0/1G2.0-100T-150-T6-2905
4	GE14-P10DNAB405-16GZ-100T-150-T6-2906
6	GNF2-P10DG2B377-13GZ-100T2-150-T6-3073
7	GNF2-P10DG2B379-14GZ-100T2-150-T6-3074
8	GNF2-P10DG2B396-15GZ-100T2-150-T6-3075
9	GNF2-P10DG2B407-6G6.0/6G5.0-100T2-150-T6-3076
10	GNF2-P10DG2B394-13GZ-100T2-150-T6-3077
12	GNF2-P10DG2B378-16GZ-100T2-150-T6-3299
13	GNF2-P10DG2B380-16GZ-100T2-150-T6-3298
14	GNF2-P10DG2B404-12GZ-100T2-150-T6-3297
16	GNF2-P10DG2B390-14GZ-100T2-150-T6-3300

RAI-01 Part c. This question consists of two parts.

Regarding the first part of the question - As for RAI-01 Part b, see the presentation provided by Russ Fawcett, on the basics of how GNF performs fuel cycle core design (provided in Enclosure 3 labeled as Attachment 1).

Regarding the second part of the question - A licensing applicability check is performed on the final core loading pattern and is documented in the Design Record Files. The licensing of the reference loading pattern is applicable to the final loading pattern if the criteria specified in GESTAR II Section 3.4.2 are met. If any of the criteria in GESTAR II Section 3.4.2 are not met, a re-examination of the bases is performed as specified in GESTAR Section 3.4.3, which includes the Safety Limit MCPR. The licensing applicability review ensures that the Supplemental Reload Licensing Report remain valid for the final loading pattern.

NRC RAI-04

The Nuclear Regulatory Commission (NRC) staff has reviewed the July 15, 2010, Entergy submittal of responses to Requests for Additional Information associated with changes to the James A. FitzPatrick (JAF) Nuclear Power Plant Cycle 20 Safety Limit Minimum Critical Power Ratios (SLMCPRs) and has the following question concerning the response to RAI-04 of the submittal:

Please identify how many of the 10x10 (GE14, GNF2) data shown in new Figure 5 are GNF2 data, because new Figure 5 only shows combined data points for GE14 and GNF2.

GNF RESPONSE

For clarity, the entire response to Item 2 of RAI-04 is provided here, augmented to provide information related to this additional request.

The 10x10 GE14 and GNF2 data points from several cases are added to Figure 5. Also updated are the lattice configurations (e.g. 8x8, 9x9, 10x10) of each fuel product line.

The 10x10 (GE14, GNF2) points shown in Figure 5 reflect transition cores with a mix of 10x10 fuel products. Thus, there are not specific GNF2 data points in Figure 5. The table following Figure 5 provides the GE14 and GNF2 batch sizes, and the corresponding [

Figure 5

[[

Table Figure 5 - 10x10 (GE14, GNF2) Data Points

[[Batch Fra		[]	
		GE14	GNF2		
		31.0	38.5		
		28.6	71.4		
		64.4	35.6		
		31.0	38.5		
		31.0	38.5		
		64.4	35.6		
		28.6	71.4		
		28.6	71.4		
		67.4	32.6		
		64.4	35.6		
		67.4	32.6		
]]	67.4	32.6]]

NRC RAI-05 and RAI-06

RAI-05: Please identify any evaluation reports that the licensee used to reach the conclusion that effect of GNF2 bent spacer wing to Fitzpatrick Cycle 20 operation is minimum. Also, provide technical justification as to why the corner wings are limiting.

RAI-06: Based on the results of the August 10, 2010, audit, the licensee/GE-GNF committed to provide the following documents to support the NRC staff review of this LAR, dated April 21, 2010:

- (1) Design Record Files for JAF Cycle 20 final core loading pattern, and SLMCPR calculation including core map to show those bundles experienced 0.1% boiling transition criterion;
- (2) Final evaluation report on Part 21 issue regarding to the GNF2 Fuel bent spacer wing;
- (3) Core map with identification of the fuel bundles for JAF Cycle 20.

GNF Response

Reference: NRC Audit on Fitzpatrick C20 SLMCPR Tech. Spec. Change letter.

Attendees: Tai Huang (NRC), Tony Attard (NRC), George Rorke (Entergy), Atul Karve (GNF), and Russ Fawcett (GNF).

Time and Place: August 10, 2010, 9.00am to 3.00pm, NEI office at 1776 I Street NW, Suite 400, Washington, DC, 20006

At the audit it was agreed that the following items support the closure of this RAI.

- (5) Qualitative explanation (Technical Basis document) of bent spacer wing
- (6) Summary of Evaluation Technique (with quantitative numbers)
- (7) Number crunching document report for evaluation of bent spacer wing impact on Fitzpatrick C20 SLMCPR.
- (8) Core map of % SLMCPR contribution layout for two-loop operation (TLO) and single-loop operation for (SLO) Fitzpatrick C20 (w/o bent flow spacer wing).

Item (1) is provided in Enclosure 3 labeled Attachment 2 (RAI-05 Part 2 and RAI-06 Part 2).

Item (2) is provided in Enclosure 3 labeled Attachment 3 (RAI-05 Part 1).

Item (3) is provided in Enclosure 3 labeled Attachment 4 (RAI-05 Part 1). Further, Attachment 5 of Enclosure 3 provides additional information which supports the position that the bent corner wing are the limiting location (RAI-05 Part 2 and RAI-06 Part 2).

Item (4): (RAI-06 Part 1) The bundle grouping for the TLO SLMCPR calculations is shown in Table RAI-05-1, along with the number of bundles in the group, their contribution to percent number of rods in boiling transition (NRSBT) and the group average exposure. The 2-dimensional map of the bundle groupings is shown in Figure RAI-05-1. The bundle grouping for the SLO SLMCPR calculations is shown in Table RAI-05-2, along with the number of bundles in the group, their contribution to % NRSBT and the group average exposure. The 2-dimensional map of the bundle groupings is shown in Figure RAI-05-2. [[

]] Both the TLO and SLO are [[]]

The response to RAI-06 Part 3 is contained with RAI-01.

Table RAI-05-1: Bundle group, # bundles, type, % contribution to NRSBT, and group exposure for TLO.

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Figure RAI-05-1: Two-dimensional map of the bundle groupings for percent contribution to NRSBT for TLO. .[[$\,$

Table RAI-05-2: Bundle group, # bundles, type, % contribution to NRSBT, and group exposure for SLO.

Figure RAI-05-2: Two-dimensional map of the bundle groupings for percent contribution to NRSBT for SLO.

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