UNDERSTANDING THE AIR SAMPLING DATA

The previous table provides screening analyses for the amount of alpha and beta activity that has been detected since the February 14 radiological event. Radioactive contamination at WIPP is measured and reported in a unit called disintegrations per minute (dpm) or in units of Becquerel (Bq).

Dose is calculated and reported in millirem. Dose varies based on factors such as length of exposure and distance from the source of the radiation. The average person living in the United States receives an annual dose from exposure to naturally occurring and other sources of radiation of about 620 millirem. A person receives about 10 millirems from a single chest x-ray procedure. For more comparisons, see the millirem comparisons poster.

Dose estimates have been calculated based on the low-volume air sampler results. Low-volume air samplers collect samples at a rate of 2 cubic feet/minute to simulate a person's normal breathing rate.

The initial dose estimate assumes the person who might be exposed is standing next to the air sampler for 8.5 hours. The subsequent dose estimates assume the person who might be exposed is standing next to the air sampler throughout the sampling period.

Dose assessment modeling from the release data shows a potential dose of less than one millirem at the environmental sample locations outside the Land Withdrawal Area.

The analyses from an off-site radiological laboratory and additional results will be posted as they become available. Comprehensive protocols are followed to ensure the results are accurate.

Air Sampling Results - Location 1

Location	Filter Retrieval Date	Screening Analyses			WIPP Isotopic Analyses		
		Results		Dose Estimate (mrem)	Results		Dose Estimate (mrem)
		dpm/sample	Bq/sample		dpm/sample	Bq/sample	
1	5/6/2014	---	---	---	Below MDC	Below MDC	N/C
1	4/29/2014	---	---	---	Below MDC	Below MDC	N/C
1	4/22/2014	---	---	---	Below MDC	Below MDC	N/C
1	4/15/2014	---	---	---	Below MDC	Below MDC	N/C
1	4/8/2014	---	---	---	Below MDC	Below MDC	N/C
1	4/1/2014	---	---	---	Below MDC	Below MDC	N/C
1	3/25/2014	---	---	---	Below MDC	Below MDC	N/C
1	3/18/2014	---	---	---	Below MDC	Below MDC	N/C
1	3/11/2014	---	---	---	Below MDC	Below MDC	N/C
1	3/4/2014	4.2	0.070	0.3	Below MDC	Below MDC	N/C
1	2/26/2014	1.9	0.032	0.1	Below MDC	Below MDC	N/C
1	2/18/2014	2.4	0.040	0.1	0.28	0.0047	0.02
1	2/15/2014	36	0.60	2	52	0.87	3

Note regarding screening results: Screening is no longer being routinely performed by DOE. Screening was important when the potential for contamination was high, immediately after the event. Screening results have returned to normal background levels so screening has been discontinued in order to facilitate timelier laboratory isotopic analysis. Laboratory isotopic analysis is the only reliable way of measuring airborne radioactivity at the low levels being encountered. Should the isotopic values increase, screening analyses may be resumed.

MDC = Minimum Detectable Concentration (An analytical laboratory limit below which any level present cannot be determined)

N/C = not calculated. It is not appropriate to calculate doses based on values that are below the instrument minimum detectable concentration. The dose at this location is expected to be the natural background dose.

Air Sampling Results - Location 2

Location	Filter Retrieval Date	Screening Analyses			WIPP Isotopic Analyses		
		Results		Dose Estimate (mrem)	Results		Dose Estimate (mrem)
		dpm/sample	Bq/sample		dpm/sample	Bq/sample	
2	5/6/2014	---	---	---	Below MDC	Below MDC	N/C
2	4/29/2014	---	---	---	Below MDC	Below MDC	N/C
2	4/22/2014	---	---	---	Below MDC	Below MDC	N/C
2	4/15/2014	---	---	---	Below MDC	Below MDC	N/C
2	4/8/2014	---	---	---	Below MDC	Below MDC	N/C
2	4/1/2014	---	---	---	Below MDC	Below MDC	N/C
2	3/25/2014	---	---	---	Below MDC	Below MDC	N/C
2	3/18/2014	---	---	---	Below MDC	Below MDC	N/C
2	3/11/2014	---	---	---	Below MDC	Below MDC	N/C
2	3/4/2014	4.9	0.082	0.3	Below MDC	Below MDC	N/C
2	2/26/2014	2.5	0.041	0.2	Below MDC	Below MDC	N/C
2	2/17/2014	4.4	0.073	0.3	0.61	0.010	0.04

Note regarding screening results: Screening is no longer being routinely performed by DOE. Screening was important when the potential for contamination was high, immediately after the event. Screening results have returned to normal background levels so screening has been discontinued in order to facilitate timelier laboratory isotopic analysis. Laboratory isotopic analysis is the only reliable way of measuring airborne radioactivity at the low levels being encountered. Should the isotopic values increase, screening analyses may be resumed.

MDC = Minimum Detectable Concentration (An analytical laboratory limit below which any level present cannot be determined)

N/C = not calculated. It is not appropriate to calculate doses based on values that are below the instrument minimum detectable concentration. The dose at this location is expected to be the natural background dose.

Air Sampling Results - Location 3

Location	Filter Retrieval Date	Screening Analyses			WIPP Isotopic Analyses		
		Results		Dose Estimate (mrem)	Results		Dose Estimate (mrem)
		dpm/sample	Bq/sample		dpm/sample	Bq/sample	
3	5/6/2014	---	---	---	Below MDC	Below MDC	N/C
3	4/29/2014	---	---	---	Below MDC	Below MDC	N/C
3	4/22/2014	---	---	---	Below MDC	Below MDC	N/C
3	4/15/2014	---	---	---	Below MDC	Below MDC	N/C
3	4/8/2014	---	---	---	Below MDC	Below MDC	N/C
3	4/1/2014	---	---	---	Below MDC	Below MDC	N/C
3	3/25/2014	---	---	---	Below MDC	Below MDC	N/C
3	3/18/2014	---	---	---	Below MDC	Below MDC	N/C
3	3/11/2014	---	---	---	Below MDC	Below MDC	N/C
3	3/4/2014	3.3	0.054	0.2	Below MDC	Below MDC	N/C
3	2/26/2014	2.2	0.037	0.2	Below MDC	Below MDC	N/C
3	2/17/2014	3.7	0.062	0.2	0.13	0.0021	0.009

Note regarding screening results: Screening is no longer being routinely performed by DOE. Screening was important when the potential for contamination was high, immediately after the event. Screening results have returned to normal background levels so screening has been discontinued in order to facilitate timelier laboratory isotopic analysis. Laboratory isotopic analysis is the only reliable way of measuring airborne radioactivity at the low levels being encountered. Should the isotopic values increase, screening analyses may be resumed.

MDC = Minimum Detectable Concentration (An analytical laboratory limit below which any level present cannot be determined)

N/C = not calculated. It is not appropriate to calculate doses based on values that are below the instrument minimum detectable concentration. The dose at this location is expected to be the natural background dose.

Air Sampling Results - Location 4

Location	Filter Retrieval Date	Screening Analyses			WIPP Isotopic Analyses		
		Results		Dose Estimate (mrem)	Results		Dose Estimate (mrem)
		dpm/sample	Bq/sample		dpm/sample	Bq/sample	
4	5/6/2014	---	---	---	Below MDC	Below MDC	N/C
4	4/29/2014	---	---	---	Below MDC	Below MDC	N/C
4	4/22/2014	---	---	---	Below MDC	Below MDC	N/C
4	4/15/2014	---	---	---	Below MDC	Below MDC	N/C
4	4/8/2014	---	---	---	Below MDC	Below MDC	N/C
4	4/1/2014	---	---	---	Below MDC	Below MDC	N/C
4	3/25/2014	---	---	---	Below MDC	Below MDC	N/C
4	3/18/2014	---	---	---	Below MDC	Below MDC	N/C
4	3/11/2014	---	---	---	Below MDC	Below MDC	N/C
4	3/4/2014	5.5	0.092	0.4	Below MDC	Below MDC	N/C
4	2/26/2014	2.6	0.043	0.2	Below MDC	Below MDC	N/C
4	2/18/2014	2.7	0.045	0.2	Below MDC	Below MDC	N/C

Note regarding screening results: Screening is no longer being routinely performed by DOE. Screening was important when the potential for contamination was high, immediately after the event. Screening results have returned to normal background levels so screening has been discontinued in order to facilitate timelier laboratory isotopic analysis. Laboratory isotopic analysis is the only reliable way of measuring airborne radioactivity at the low levels being encountered. Should the isotopic values increase, screening analyses may be resumed.

MDC = Minimum Detectable Concentration (An analytical laboratory limit below which any level present cannot be determined)

N/C = not calculated. It is not appropriate to calculate doses based on values that are below the instrument minimum detectable concentration. The dose at this location is expected to be the natural background dose.

Air Sampling Results - Location 5

Location	Filter Retrieval Date	Screening Analyses			WIPP Isotopic Analyses		
		Results		Dose Estimate (mrem)	Results		Dose Estimate (mrem)
		dpm/sample	Bq/sample		dpm/sample	Bq/sample	
5	5/6/2014	---	---	---	Below MDC	Below MDC	N/C
5	4/29/2014	---	---	---	Below MDC	Below MDC	N/C
5	4/22/2014	---	---	---	Below MDC	Below MDC	N/C
5	4/15/2014	---	---	---	Below MDC	Below MDC	N/C
5	4/8/2014	---	---	---	Below MDC	Below MDC	N/C
5	4/1/2014	---	---	---	Below MDC	Below MDC	N/C
5	3/25/2014	---	---	---	Below MDC	Below MDC	N/C
5	3/18/2014	---	---	---	Below MDC	Below MDC	N/C
5	3/11/2014	---	---	---	Below MDC	Below MDC	N/C
5	3/4/2014	5.5	0.092	0.4	Below MDC	Below MDC	N/C
5	2/26/2014	1.1	0.019	0.07	Below MDC	Below MDC	N/C
5	2/17/2014	4.2	0.070	0.3	0.26	0.0043	0.02

Note regarding screening results: Screening is no longer being routinely performed by DOE. Screening was important when the potential for contamination was high, immediately after the event. Screening results have returned to normal background levels so screening has been discontinued in order to facilitate timelier laboratory isotopic analysis. Laboratory isotopic analysis is the only reliable way of measuring airborne radioactivity at the low levels being encountered. Should the isotopic values increase, screening analyses may be resumed.

MDC = Minimum Detectable Concentration (An analytical laboratory limit below which any level present cannot be determined)

N/C = not calculated. It is not appropriate to calculate doses based on values that are below the instrument minimum detectable concentration. The dose at this location is expected to be the natural background dose.

Air Sampling Results - Location 6

Location	Filter Retrieval Date	Screening Analyses			WIPP Isotopic Analyses		
		Results		Dose Estimate (mrem)	Results		Dose Estimate (mrem)
		dpm/sample	Bq/sample		dpm/sample	Bq/sample	
6	5/6/2014	---	---	---	Below MDC	Below MDC	N/C
6	4/29/2014	---	---	---	Below MDC	Below MDC	N/C
6	4/22/2014	---	---	---	Below MDC	Below MDC	N/C
6	4/15/2014	---	---	---	Below MDC	Below MDC	N/C
6	4/8/2014	---	---	---	Below MDC	Below MDC	N/C
6	4/1/2014	---	---	---	Below MDC	Below MDC	N/C
6	3/25/2014	---	---	---	Below MDC	Below MDC	N/C
6	3/18/2014	---	---	---	Below MDC	Below MDC	N/C
6	3/11/2014	---	---	---	Below MDC	Below MDC	N/C
6	3/4/2014	7.1	0.12	0.5	Below MDC	Below MDC	N/C
6	2/26/2014	2.2	0.037	0.2	Below MDC	Below MDC	N/C
6	2/18/2014	1.6	0.027	0.1	Below MDC	Below MDC	N/C

Note regarding screening results: Screening is no longer being routinely performed by DOE. Screening was important when the potential for contamination was high, immediately after the event. Screening results have returned to normal background levels so screening has been discontinued in order to facilitate timelier laboratory isotopic analysis. Laboratory isotopic analysis is the only reliable way of measuring airborne radioactivity at the low levels being encountered. Should the isotopic values increase, screening analyses may be resumed.

MDC = Minimum Detectable Concentration (An analytical laboratory limit below which any level present cannot be determined)

N/C = not calculated. It is not appropriate to calculate doses based on values that are below the instrument minimum detectable concentration. The dose at this location is expected to be the natural background dose.

Air Sampling Results - Location 7

Location	Filter Retrieval Date	Screening Analyses			WIPP Isotopic Analyses		
		Results		Dose Estimate (mrem)	Results		Dose Estimate (mrem)
		dpm/sample	Bq/sample		dpm/sample	Bq/sample	
7	5/6/2014	---	---	---	Below MDC	Below MDC	N/C
7	4/29/2014	---	---	---	Below MDC	Below MDC	N/C
7	4/22/2014	---	---	---	Below MDC	Below MDC	N/C
7	4/15/2014	---	---	---	Below MDC	Below MDC	N/C
7	4/8/2014	---	---	---	Below MDC	Below MDC	N/C
7	4/1/2014	---	---	---	Below MDC	Below MDC	N/C
7	3/25/2014	---	---	---	Below MDC	Below MDC	N/C
7	3/18/2014	---	---	---	Below MDC	Below MDC	N/C
7	3/11/2014	---	---	---	Below MDC	Below MDC	N/C
7	3/4/2014	6.7	0.11	0.4	Below MDC	Below MDC	N/C
7	2/26/2014	2.7	0.044	0.2	Below MDC	Below MDC	N/C
7	2/18/2014	1.3	0.022	0.1	Below MDC	Below MDC	N/C

Note regarding screening results: Screening is no longer being routinely performed by DOE. Screening was important when the potential for contamination was high, immediately after the event. Screening results have returned to normal background levels so screening has been discontinued in order to facilitate timelier laboratory isotopic analysis. Laboratory isotopic analysis is the only reliable way of measuring airborne radioactivity at the low levels being encountered. Should the isotopic values increase, screening analyses may be resumed.

MDC = Minimum Detectable Concentration (An analytical laboratory limit below which any level present cannot be determined)

N/C = not calculated. It is not appropriate to calculate doses based on values that are below the instrument minimum detectable concentration. The dose at this location is expected to be the natural background dose.

Air Sampling Results - Location 8

Location	Filter Retrieval Date	WIPP Isotopic Analyses		
		Results		Dose Estimate (mrem)
		dpm/sample	Bq/sample	
8	5/6/2014	Below MDC	Below MDC	N/C
8	4/29/2014	Below MDC	Below MDC	N/C
8	4/22/2014	Below MDC	Below MDC	N/C
8	4/15/2014	Below MDC	Below MDC	N/C
8	4/8/2014	Below MDC	Below MDC	N/C
8	4/1/2014	Below MDC	Below MDC	N/C
8	3/25/2014	Below MDC	Below MDC	N/C
8	3/18/2014	Below MDC	Below MDC	N/C
8	3/11/2014	Below MDC	Below MDC	N/C

MDC = Minimum Detectable Concentration (An analytical laboratory limit below which any level present cannot be determined)

N/C = not calculated. It is not appropriate to calculate doses based on values that are below the instrument minimum detectable concentration. The dose at this location is expected to be the natural background dose.

Air Sampling Results - Location 9

Location	Filter Retrieval Date	WIPP Isotopic Analyses		
		Results		Dose Estimate (mrem)
		dpm/sample	Bq/sample	
9	5/6/2014	Below MDC	Below MDC	N/C
9	4/29/2014	Below MDC	Below MDC	N/C
9	4/22/2014	Below MDC	Below MDC	N/C
9	4/15/2014	Below MDC	Below MDC	N/C
9	4/8/2014	Below MDC	Below MDC	N/C
9	4/1/2014	Below MDC	Below MDC	N/C
9	3/25/2014	Below MDC	Below MDC	N/C
9	3/18/2014	Below MDC	Below MDC	N/C
9	3/11/2014	Below MDC	Below MDC	N/C

MDC = Minimum Detectable Concentration (An analytical laboratory limit below which any level present cannot be determined)

N/C = not calculated. It is not appropriate to calculate doses based on values that are below the instrument minimum detectable concentration. The dose at this location is expected to be the natural background dose.

Air Sampling Results - Location 10

Location	Filter Retrieval Date	WIPP Isotopic Analyses		
		Results		Dose Estimate (mrem)
		dpm/sample	Bq/sample	
10	5/6/2014	Below MDC	Below MDC	N/C
10	4/29/2014	Below MDC	Below MDC	N/C
10	4/22/2014	Below MDC	Below MDC	N/C
10	4/15/2014	Below MDC	Below MDC	N/C
10	4/8/2014	Below MDC	Below MDC	N/C
10	4/1/2014	Below MDC	Below MDC	N/C
10	3/25/2014	Below MDC	Below MDC	N/C
10	3/18/2014	Below MDC	Below MDC	N/C
10	3/11/2014	Below MDC	Below MDC	N/C

MDC = Minimum Detectable Concentration (An analytical laboratory limit below which any level present cannot be determined)

N/C = not calculated. It is not appropriate to calculate doses based on values that are below the instrument minimum detectable concentration. The dose at this location is expected to be the natural background dose.

Air Sampling Results - Location 11

Location	Filter Retrieval Date	WIPP Isotopic Analyses		
		Results		Dose Estimate (mrem)
		dpm/sample	Bq/sample	
11	5/6/2014	Below MDC	Below MDC	N/C
11	4/29/2014	Below MDC	Below MDC	N/C
11	4/22/2014	Below MDC	Below MDC	N/C
11	4/15/2014	Below MDC	Below MDC	N/C
11	4/8/2014	Below MDC	Below MDC	N/C
11	4/1/2014	Below MDC	Below MDC	N/C

MDC = Minimum Detectable Concentration (An analytical laboratory limit below which any level present cannot be determined)

N/C = not calculated. It is not appropriate to calculate doses based on values that are below the instrument minimum detectable concentration. The dose at this location is expected to be the natural background dose.

Air Sampling Results - Location 12

Location	Filter Retrieval Date	WIPP Isotopic Analyses		
		Results		Dose Estimate (mrem)
		dpm/sample	Bq/sample	
12	5/6/2014	Below MDC	Below MDC	N/C
12	4/29/2014	Below MDC	Below MDC	N/C
12	4/22/2014	Below MDC	Below MDC	N/C
12	4/15/2014	Below MDC	Below MDC	N/C

MDC = Minimum Detectable Concentration (An analytical laboratory limit below which any level present cannot be determined)

N/C = not calculated. It is not appropriate to calculate doses based on values that are below the instrument minimum detectable concentration. The dose at this location is expected to be the natural background dose.

Air Sampling Results - Location 13

Location	Filter Retrieval Date	WIPP Isotopic Analyses		
		Results		Dose Estimate (mrem)
		dpm/sample	Bq/sample	
13	5/6/2014	Below MDC	Below MDC	N/C
13	4/29/2014	Below MDC	Below MDC	N/C
13	4/22/2014	Below MDC	Below MDC	N/C
13	4/15/2014	Below MDC	Below MDC	N/C

MDC = Minimum Detectable Concentration (An analytical laboratory limit below which any level present cannot be determined)

N/C = not calculated. It is not appropriate to calculate doses based on values that are below the instrument minimum detectable concentration. The dose at this location is expected to be the natural background dose.

Air Sampling Results - Location 14

Location	Filter Retrieval Date	WIPP Isotopic Analyses		
		Results		Dose Estimate (mrem)
		dpm/sample	Bq/sample	
14	5/6/2014	Below MDC	Below MDC	N/C
14	4/29/2014	Below MDC	Below MDC	N/C
14	4/22/2014	Below MDC	Below MDC	N/C
14	4/15/2014	Below MDC	Below MDC	N/C

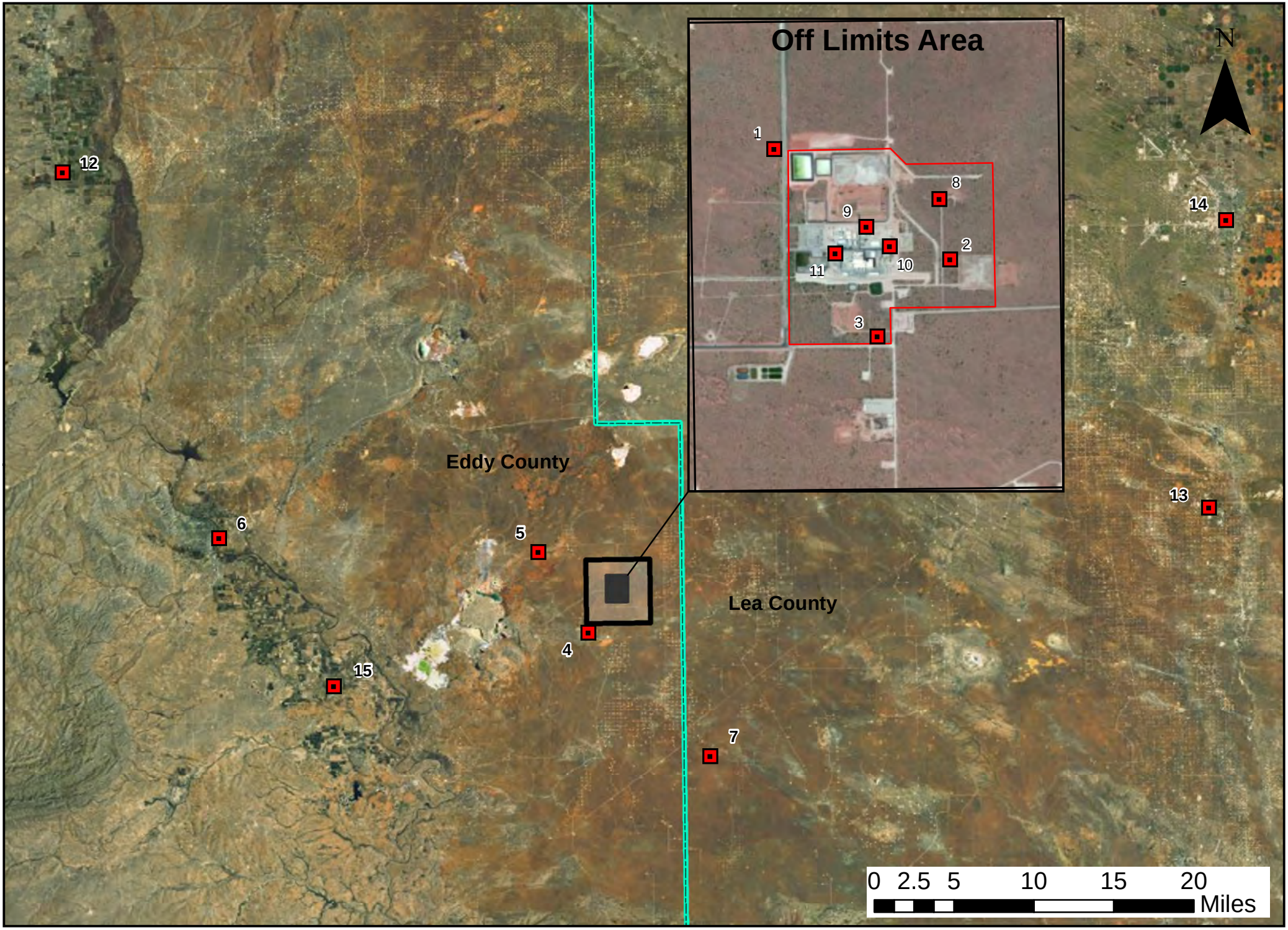
MDC = Minimum Detectable Concentration (An analytical laboratory limit below which any level present cannot be determined)

N/C = not calculated. It is not appropriate to calculate doses based on values that are below the instrument minimum detectable concentration. The dose at this location is expected to be the natural background dose.

Air Sampling Results - Location 15

Location	Filter Retrieval Date	WIPP Isotopic Analyses		
		Results		Dose Estimate (mrem)
		dpm/sample	Bq/sample	
15	5/6/2014	Below MDC	Below MDC	N/C
15	4/29/2014	Below MDC	Below MDC	N/C
15	4/22/2014	Below MDC	Below MDC	N/C
15	4/15/2014	Below MDC	Below MDC	N/C

MDC = Minimum Detectable Concentration (An analytical laboratory limit below which any level present cannot be determined)

N/C = not calculated. It is not appropriate to calculate doses based on values that are below the instrument minimum detectable concentration. The dose at this location is expected to be the natural background dose.

DOE Active Air Sampling Sites