Adrian, Michigan, Site

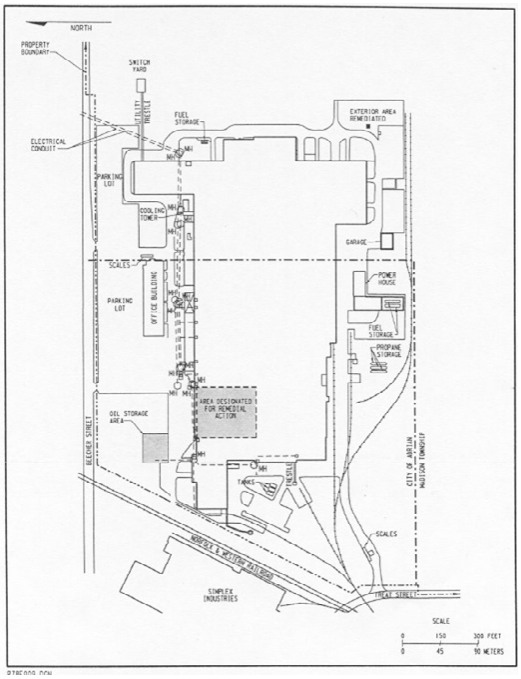
U.S. DEPARTMENT OF ENERGY | Legacy Management

SITE CERTIFICATION SUMMARY

This Site Certification Summary provides information about the **Adrian, Michigan, Site**. The U.S. Department of Energy Office of Legacy Management is responsible for long-term stewardship of the site under the **Formerly Utilized Sites Remedial Action Program**.

Site Description and History

The Adrian, Michigan, Site (also known as the General Motors [GM] Site) is located in Lenawee County at 1450 Beecher Street, Adrian, Michigan. During the 1950s, the Bridgeport Brass Company operated the Special Metals Extrusion Plant at the GM site. The plant extruded uranium metal, which was used in the fabrication of reactor fuel elements for the Hanford, Washington, and Savannah River, South Carolina, reactors. Bridgeport Brass Company eventually sold the plant to Martin Marietta Energy Systems, Inc. in the early 1960s, who, in turn, sold to GM Inland Fisher Guide Division in 1974. The GM site was a large complex covering approximately 17 acres but only used a portion of this area for uranium-extrusion operations. The extrusion process area, which required remedial action, is approximately 3,800 square meters.



General Motors site plan (click image to enlarge).

Site Remediation Timeline

1977 — Oak Ridge National Laboratory (ORNL) conducted a radiological scanning survey of the site.

1985 — A GM construction project identified additional contamination.

July 21, 1988 — The site was designated for remedial action under the Formerly Utilized Sites Remedial Action Program (FUSRAP).

1994 — The U.S. Department of Energy (DOE) conducted an additional radiological survey of the site.

March 1995 — ORNL performed independent verification studies of the site.*

April to July 1995 — DOE and Bechtel National Inc. completed remedial action at the site.

January 29, 1997 — DOE published a notice of site cleanup certification in the Federal Register.

2004 — DOE transferred responsibility for the Adrian site to the DOE Office of Legacy Management (LM).

Certification Docket Contents

The Certification Docket documents the successful remediation of radioactively contaminated areas at the Adrian site. The docket includes documents supporting DOE certification that conditions at the subject property are in compliance with applicable radiological guidelines and standards. In addition, the certification docket provides documents certifying that the future use of the property will not result in any significant radiological hazard to the general public.

*The independent verification contractor's report indicates that the verification took place in March 1995, but a memo in the certification docket indicates that the verification took place in June 1995.

Remedial Action

As part FUSRAP, DOE and Bechtel National Inc. performed remedial activities at the Adrian site from April to July 1995. See the Fact Sheet for details.

FUSRAP objectives for the site were to:

- Identify and assess sites used for early Manhattan Engineer District (MED)/U.S. Atomic Energy Commission (AEC) nuclear work to determine whether further decontamination and/or control is needed.
- Decontaminate and/or apply controls to the sites, where needed, to permit conformance with current applicable guidelines.
- Dispose of and/or stabilize all generated radioactive waste residues in an environmentally acceptable manner.
- Accomplish work in accordance with appropriate landowner agreements and local and state environmental and land use requirements to the extent required by federal law and applicable regulations, standards, policies, and procedures.
- Remove hazardous waste that is mingled or "mixed" with radioactively contaminated waste resulting from MED/AEC-related work, regardless of the hazardous characteristics.
- Certify, at the completion of the remedial action, that the condition of the site complies with guidelines and that the release of the site without radiological restrictions is appropriate.

Remediated area at the Adrian site (July 1995).

Post-Remediation Sampling

DOE restored the property to an acceptable condition, with concurrence by the property owner, by backfilling the sumps and manholes, welding the cover plates shut, and plugging and filling all associated piping. DOE removed all residual radioactive material that exceeded current guidelines in a practical and cost-effective manner. DOE left some contaminated materials in place in the piping system because of the high cost of complete remediation. A hazard assessment concluded that contamination left in the piping system would not result in risk to the general public. DOE used post-remedial action direct-surface-contamination measurements to verify the removal of the residual radioactive material from the pipe chase areas to levels below the DOE guidelines. DOE applied the supplemental limits derived from the hazard assessment to the remaining areas.

For more detailed results of the post-remediation sampling, please see the Site Certification Data Summary Worksheet on pages 4-5. For a more detailed map of the site and sampling locations, please see the Site Overview Map on page 6.

Current Site Conditions

The post-remedial action survey data indicated that all areas of the Adrian site determined to be contaminated during characterization surveys are now in compliance with applicable guidelines (authorized or supplemental limits) for cleanup of residual radioactive contamination. Based on a review of post-remedial action measurements, survey procedures, and quality assurance data, the independent verification contractor confirmed that the site was decontaminated to the radiological guidelines established for the site, below the DOE guidelines. DOE released the site for use without radiological restrictions.

Because the remedial activities at the Adrian site took place before October 1997, residual contamination guidelines from DOE Order 5400.5, *Radiation Protection of the Public and the Environment*, were met. Sites remediated after October 1997 must meet the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9601 et seq.), as amended, and the National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR Part 300).

DOE has been responsible for long-term stewardship of the Adrian site since 1996. The stewardship requirements and protocols are captured in the Long-Term Stewardship Plan for Completed FUSRAP Sites, which is available on the DOE Office of Legacy Management website (www.energy.gov/lm/adrian-michigan-site).

Adrian, Michigan, Site (July 2010).

ADDITIONAL INFORMATION

Documents related to FUSRAP activities at the Adrian, Michigan, Site are available on the LM website at lmpublicsearch.lm.doe.gov/SitePages/default.aspx?sitename=Adrian.

For other information on site history or current long-term stewardship activities, please contact us at:

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Adrian, Michigan, Site Certification Data Summary Worksheet

Two tables in the Adrian Certification Docket provide the evidence used to certify the site as clean.

When the tables refer to the "Certification Docket," that is the "Certification Docket for the Remedial Action Performed at the General Motors Site in Adrian, Michigan, Revision 1" (dated December 2002).

Post-Remedial Action Survey Results for the Drain Lines at the General Motors Site[a]			
Table I-3 in Certification Docket (page I-24)			
Component	**Current Levels of Residual Contamination (dpm/100 cm²)**	**Average Over Length Surveyed (dpm/100 cm²)**	**Status**
Drainline:			
A	Pipe was found to be previously backfilled.	N/A	Filled
B	3,500 - 32,720	7,760	Plugged at pipe chase
C	7,840 - 1,343,631	540,000	Partially filled
D	3,270 - 10,941	1,850	Plugged at pipe chase
E	2,940 - 5,484	2,210	Plugged at pipe chase
F	Pipe inaccessible. No survey conducted.	N/A	Plugged at M25
G	3,280 - 3,307	1,110	Plugged at M1
H[c]	36,637 - 6,314,289	361,000	Filled
I[c]	18,668 - 752,077	166,000	Filled

[a]These surveys were conducted by the remedial action contractor.

[b]Average calculations include negative results as zero, and results less than the detection limit (but greater than zero) as the value reported. Thus, in some cases where activity levels are low, it is possible for the calculated average to be less than the MDA.

[c]These drain lines are associated with the 42-in. sump.

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Adrian, Michigan, Site Certification Data Summary Worksheet

Post-Remedial Action Survey Results for Walls, Floors, and Other Areas at the General Motors Site

Table I-4 in Certification Docket (page I-25)

	Direct Surface Contamination			Transferable Surface Contamination[a]	
Component	**Number of Samples**	**Alpha Range (dpm/100 cm²)**	**Beta/Gamma Range (dpm/100 cm²)**	**Number of Samples**	**Beta/Gamma Range (dpm/100 cm²)**
M1					
Walls:					
North	5	61 - 212	-83 - 584	a	a
Northeast	5	20 - 161	445 - 1,168	1	<-21b
East	6	50 - 182	56 - 640	1	<-16
Southeast	5	81 - 192	195 - 862	a	a
South	5	71 - 222	250 - 862	a	a
Southwest	5	50 - 212	28 - 695	a	a
West	5	30 - 313	-83 - 528	1	<-51
Northwest	6	50 - 192	306 - 862	a	a
Floor:		<-6 - 89	612 - 4,727	2	<-7 - <28
M15					
Walls:					
North	5	-50 - 212	584 - 2,475	1	<16
Northeast	5	-50 - 71	556 - 1,502	1	<-1
East	6	-50 - 141	445 - 2,197	2	<-1 - 59
Southeast	5	-20 - 111	334 - 1,418	2	<4 - 54
South	5	-50 - 121	501 - 3,587	2	<-9 - 29
Southwest	5	-50 - 161	417 - 1,307	1	<-17
West	5	-50 - 252	417 - 945	2	<-38 - 20
Northwest	6	-50 - 202	195 - 4,255	1	83
Floor:	12	81 - 353	1,390-13,598	12	<14 - 185
42-in. SUMP					
Walls:	14	69 - 956	<163 - 4,391	14	<-19 - 58
Sump 3					
Walls:					
North	6	<-4 - 140b	729 - 2,609	4	<7 - 41
East	6	53 - 282	1,150 - 5,863	4	<3 - <20
South	6	63 - 140	6,170 - 9,285	4	<-19 - 105
West	6	<15 - 82	701 - 1,066	4	<-27 - 24
Floor:	5	<-8 - 258	125 - 215,064	NA	NA
OIL TRAP:					
Hole A:					
Walls:					
North	4	c	844 - 63,375	c	c
East	4	c	1,216 - 3,896	c	c
South	4	c	1,588 - 108,933	c	c
West	5	c	1,067 - 4,069	c	c
Floor:	4	c	5,246 - 15,341	c	c
Hole B:					
Walls:					
North	4	c	1,017 - 52,308	c	c
East	4	c	1,117 - 26,744	c	c
South	4	c	1,166 - 6,352	c	c
West	5	c	1,638 - 3,524	c	c
Floor:	4	c	4,067 - 64,909	c	c
Hole C:					
Walls:					
North	4	c	1,861 - 8,511	c	c
East	4	c	794 - 7,370	c	c
South	4	c	2,060 - 6,179	c	c
West	5	c	1,638 - 7,618	c	c
Floor:	4	c	1,516 - 32,903	c	c
PIPE CHASE:					
East End					
Walls:					
North	52	<-8 - 70	<-309 - 1,206b	2	<-12 - <5
South	52	<-8 - 97	<-281 - 757	a	a
East	39	2 - 9.7	<84 - 4,628	11	<-25 - <52
Floor:	39	<-15 - 51	<-564 - 908	a	a
West End					
Walls:					
North	44	<-13 - 290	<167 - 2,753	14	<-17 - 75
South	44	<15 - 602	<83 - 3,115	14	<-34 - 114
West	6	<-13 - 25	<222 - 612	a	a
Floor:	33	<6 - 233	<306 - 3,671	21	<-17 - 92
Stores Area:					
Walls:					
North	70	331	2.38 x 103	24	<-29 - 91
South	70	<2 - 324	2.67 x 103	17	<-28 - 79
Floor:	56	335	2.16 x 103	22	<-19 - 67
DOE Guidelines:		**5,000**	**5,000 (Average) 15,000 (Maximum)**		**1,000**

[a]Transferable samples taken when direct surface contamination readings exceed the DOE guidelines.

[b]The "<" sign indicates that the measurement was less than the minimum detectable activity (MDA). The "<-" sign indicates that the measurement was less than the MDA and that after background was subtracted, the numerical value was negative (i.e., <MDA result minus background >MDA = negative results indicated by "<-").

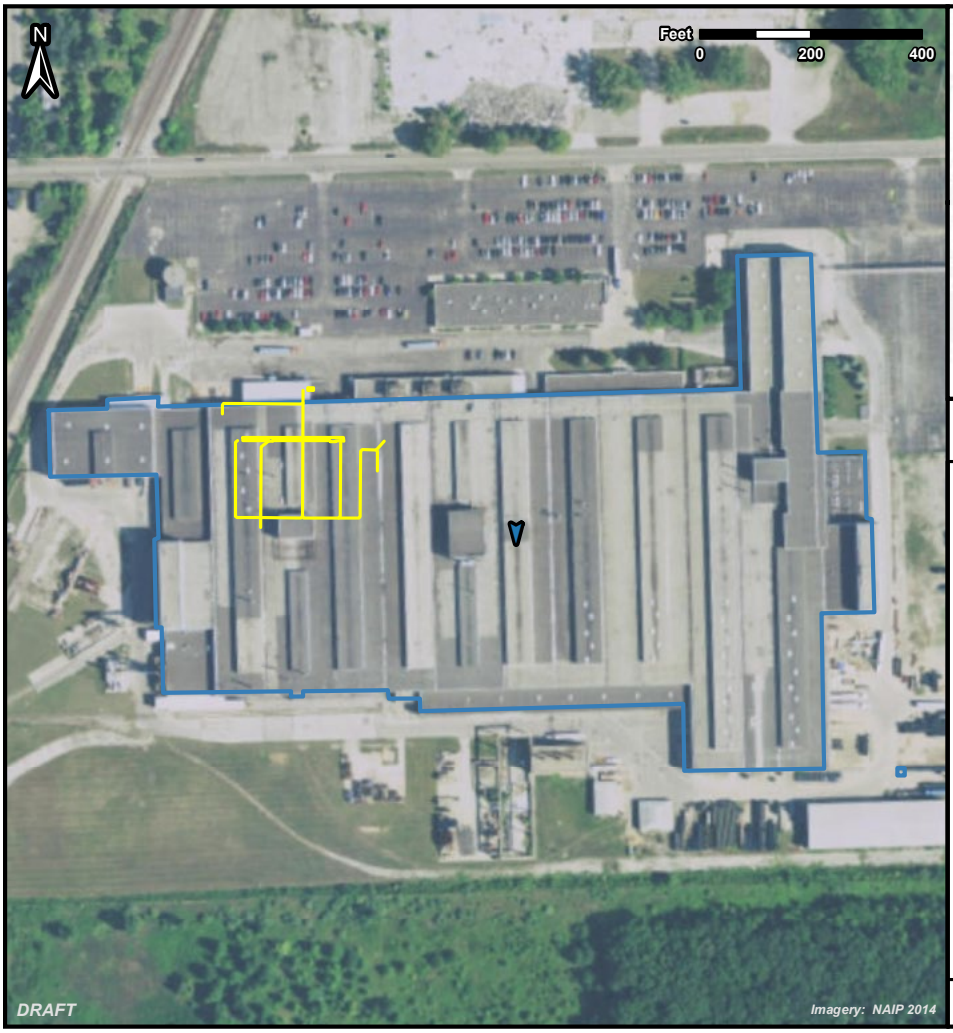
[c]Pipe Explorer™ readings; capabilities limited to direct readings only. Alpha detection is currently unavailable.

NOTES:

1. All results include background levels for the Adrian area. The average background gamma radiation exposure rate for the are is 7.0 µR/h. The average total uranium concentration is 1.5 pCi/g. All post-remedial action and hazard assessment measurements were made by the remedial action contractor.

2. Pipe chase area was remediated to DOE Order 5400.5 levels. Remaining areas were remediated to supplemental levels.

Adrian, Michigan, Site Map



U.S. DEPARTMENT OF ENERGY
OFFICE OF LEGACY MANAGEMENT

Work Performed by
Navarro Research & Engineering, Inc.
Under DOE Contract Number DE-LM0000421

Adrian, MI, Site

- Final Site Survey
- FUSRAP Site Pin
- FUSRAP Certified Site Boundary

DATE PREPARED:	FILE NAME:
June 12, 2017	ADR_DELIVERABLE

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