

November 28, 2008

Mr. Jack Craig
U.S. Department of Energy
Grand Junction Office
2597 B 3/4 Road
Grand Junction, CO 81503

SUBJECT: REVIEW OF REVISED LONG-TERM SURVEILLANCE PLAN FOR THE U.S.
DEPARTMENT OF ENERGY CANONSBURG URANIUM MILL TAILINGS
DISPOSAL SITE, CANONSBURG, PENNSYLVANIA (TAC J00542)

Dear Mr. Craig:

By letter dated September 18, 2008, the U.S. Department of Energy (DOE) submitted a revised *Long-Term Surveillance Plan (LTSP) for the U.S. Department of Energy Uranium Mill Tailings Disposal Site at Canonsburg, Pennsylvania* (September 2008) for review and acceptance. The changes made to the LTSP include a discussion of the institutional controls for parcels subject to disposition and minor updates on the status of the site since the last LTSP revision. DOE is seeking to sell a portion of Tract 117 that lies to the east of Strabane Avenue (Tract 117-E). This parcel is considered an "uneconomical remainder" that is outside the disposal cell boundary. The discussion of institutional controls was included in the LTSP to support the potential sale of Tract 117-E.

The U.S. Nuclear Regulatory Commission (NRC) staff has completed its review of DOE's revised LTSP as documented in the enclosed Technical Evaluation Report (TER). The staff considers the proposed changes, which support the sale of Tract 117-E to be protective of public health and safety, and therefore acceptable. Accordingly, the NRC hereby accepts the revised Canonsburg LTSP dated September 2008.

If you have any questions regarding this letter, please contact Mr. Douglas Mandeville at (301) 415-0724 or by e-mail at douglas.mandeville@nrc.gov.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice for Domestic Licensing Proceedings and Issuance of Orders," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records

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Sincerely,

/RA/

Keith I. McConnell, Deputy Director
Decommissioning and Uranium Recovery
Licensing Directorate
Division of Waste Management
and Environmental Protection
Office of Federal and State Materials
and Environmental Management Programs

Docket No.: WM-00042
Licensee: U.S. Department of Energy

Enclosure: Technical Evaluation Report

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**TECHNICAL EVALUATION REPORT
CANONSBURG URANIUM MILL TAILINGS DISPOSAL SITE
LONG TERM SURVEILLANCE PLAN REVISION**

DATE: September 29, 2008

DOCKET NO.: WM-42

LICENSEE: U.S. Department of Energy

SITE: Canonsburg, Pennsylvania

PROJECT MANAGER: Douglas T. Mandeville

TECHNICAL REVIEWERS: Douglas T. Mandeville and James Webb

SUMMARY AND CONCLUSIONS:

On September 18, 2008, The U.S. Department of Energy (DOE) submitted a revised *Long-Term Surveillance Plan (LTSP) for the U.S. Department of Energy Uranium Mill Tailings Disposal Site at Canonsburg, Pennsylvania* (DOE 2008) to the U.S. Nuclear Regulatory Commission for review and acceptance. As identified in the cover letter accompanying the LTSP, DOE's main purpose for this revision was to modify portions of the document related to the potential sale of a parcel of land referred to as Tract 117-E at the Canonsburg site. Tract 117-E is considered by DOE to be an "uneconomical remainder" that is not needed to fulfill its mission at the Canonsburg site. Tract 117-E does have one small area of thorium contamination that remained after completion of the remedial action. DOE revised the LTSP to include a discussion of the institutional controls for parcels subject to disposition. The revised LTSP also contains revisions that describe minor changes to the site that have occurred since the LTSP was last updated.

The staff has reviewed the revised LTSP and has determined that the changes in the September 2008 LTSP are acceptable. The deed restrictions that will be in place for Tract 117-E will minimize the potential for exposure to thorium. DOE has indicated that the inspection practices for Tract 117-E will be the same as for the adjacent Area C parcel. The staff has reviewed the changes to the LTSP and considers the changes protective of public health and safety. Accordingly, the NRC hereby accepts the revised Canonsburg LTSP dated September 2008.

BACKGROUND:

The DOE Canonsburg facility is located in the Borough of Canonsburg, in northern Washington County, Pennsylvania, approximately 20 miles (mi) southwest of Pittsburgh, Pennsylvania (Figure 1). The site covers approximately 30 acres and is adjacent to Chartiers Creek (Figure 2). The facility had been used to process or contain radioactive materials since 1911 under several owners. As part of the Uranium Mill Tailings Radiation Control Act (UMTRCA) of 1978, as amended, the designated disposal site at Canonsburg consisted of three parcels. These are referred to as Areas A, B, and C. DOE developed a Remedial Action Plan (RAP) for the Canonsburg site and obtained NRC concurrence.

Enclosure

The RAP called for consolidating the residual radioactive materials into a disposal cell within Areas A and B at the site. The disposal cell was designed with a clay liner and a final cover system to isolate the residual radioactive materials from the surrounding environment. Between 1984 and 1986, DOE conducted surface remediation in accordance with the approved RAP by removing the residual radioactive material and stabilizing it in the permanent disposal cell. The Canonsburg site was remediated to the radium (Ra-226) standard established by the United States Environmental Protection Agency (USEPA). The remedial action included removing contaminated soil from Area C and Tract 117-E. Following removal of the contaminated soil, these areas were regraded with clean fill. The disposal cell covers about 6 acres and contains approximately 226,000 tons of residual radioactive material. The NRC concurred on completion of the remedial action on August 14, 1995 (NRC, 1995). In October 1995, DOE established the original LTSP for the Canonsburg, Pennsylvania, Disposal Site (DOE, 1995). The NRC accepted this LTSP on January 16, 1996 (NRC, 1996). This action established the Canonsburg site under the general license in 10 CFR Part 40.27 and made DOE responsible for the long term care and maintenance of the site.

TECHNICAL EVALUATION:

DOE has proposed the following changes in the revised LTSP (DOE, 2008):

- 1) DOE has revised portions of the text in Section 2.1 to reflect the completed sale of the Area C property to a private party in 2005.
- 2) The legal description of the property in Section 2.3.1 has been revised to reflect the status of the site boundary along Chartiers Creek.
- 3) DOE has made minor changes to the site description in Section 2.3.3 to reflect the current vegetation found on-site and the relocation of a small amount of soil from the 2006 stream bank restoration to a location near the vicinity property low mound.
- 4) A revision was made to Figure 2-2 to indicate changes made to the perimeter fence. A narrative description of changes to the security fence has been made in Section 2.3.5.
- 5) DOE has included discussion of the stream bank restoration work conducted in 2006 in Sections 2.3.3 and 2.4.3.
- 6) DOE has revised text in Section 2.3.3 addressing the presence of residual contamination present in Area C.
- 7) DOE has added discussion in Section 2.3.3 related to a small parcel of land southwest of the disposal cell that it was considering for release for industrial use. DOE has decided to take no action on this property and will retain ownership.
- 8) DOE included discussion of deed restrictions and inspection practices in Sections 2.3.4 and 3.8 that would be included on parcels of land that may be considered for release in the future.
- 9) DOE has provided an updated description of groundwater conditions at the site in Section 2.4.2.
- 10) DOE has included a revised discussion of Health and Safety in Section 3.11.

In addition to the changes identified above, DOE made several minor editorial changes to the revised LTSP. Of the changes listed above, changes 1 through 6, and 9, provide updates to the LTSP related to site conditions. Change 10 reflects an update on health and safety practices that DOE will follow when performing the site inspections. NRC concurs that these changes to the LTSP were necessary and are acceptable. The remainder of this Technical Evaluation Report addresses changes 7 and 8.

Change Number 7

In Section 2.3.3, DOE describes the evaluation it undertook related to the potential sale of a parcel of land located southwest of the disposal cell. DOE conducted a radiological survey in 2007 and identified locations of radium-226 contamination in the soil. The contamination was found to be in excess of the established radiological criteria for the property. DOE indicated that approximately 35 cubic yards of soil from the contaminated area would need to be removed in order for the site to be released for unrestricted use. DOE has decided to take no action on this property and will retain ownership of the parcel.

The text included as part of change number 7 was added to the LTSP to document DOE's decision-making process related to this parcel of land. Since DOE decided to retain ownership and control of the property, NRC staff concurs on this change to the LTSP.

Change Number 8

In the cover letter submitted with the revised LTSP, DOE indicated that the changes related to deed restrictions and inspection practices were made in support of the potential sale of Tract 117-E at the Canonsburg site. As shown on Figure 3, Tract 117 lies parallel to the railroad tracks on the southern side of the site. Tract 117-E is the portion of Tract 117 that lies east of Strabane Avenue. The potential sale would only be for Tract 117-E, which is bounded by Area C to the north, Chartiers Creek to the east, a set of railroad tracks to the south, and Strabane Avenue to the west. Tract 117-E is located outside of the security fence at the Canonsburg site. The remainder of this section discusses the history of Area C and Tract 117-E before addressing the specific changes to the LTSP. Note that Area C was generally considered to include Tract 117-E.

The designated disposal site at Canonsburg consists of Areas A, B, and C. During the remedial action process, DOE identified additional "non-designated" parcels that were adjacent to Areas A, B, and C that would need to be acquired. Tract 117-E is a portion of Tract 117, which is one of the "non-designated" parcels. The United States Army Corps of Engineers acquired the additional "non-designated" parcels in the name of the United States of America. Figure 3 shows all of the parcels at the Canonsburg site. A list of the additional "non-designated" properties is provided on Table 1.

Remedial actions in Area C and Tract 117-E included removal of contaminated soil to the disposal cell located in Areas A and B. Clean fill was then brought into Area C and Tract 117-E and the area was regraded. These activities are documented in DOE's Completion Report for the remedial action at Canonsburg (DOE, 1986). NRC staff reviewed DOE's completion report for the remedial action at Canonsburg and documented its findings in a Completion Report Review (NRC, 1995). In the Completion Report Review document, NRC staff noted that DOE performed the remedial action in accordance with the Ra-226 cleanup criteria provided in the Remedial Action Plan (RAP) and that the criteria was established in a manner that accounts for the gradual in-growth of Ra-226 as a result of the Th-230 decay over 1000 years.

The Completion Report Review also discusses the presence of a Th-230 anomaly that lies within Area C and Tract 117-E as indicated below:

"The CR indicates that verification grid No. 240 of Area C contains 58 pCi/g Th-230. In combination with the residual Ra-226, this will result in 26 pCi/g of Ra-226 in 1000 years.

This exceeds the subsurface soil standard of 15 pCi/g plus background (1.3 pCi/g). The cost to remediate this grid is not warranted, based on the insignificant health risk because of the deeply buried material. Considering DOE's planned imposition of restrictions on the future use of Area C prior to transfer of land in accordance with Section 104 (e) of UMTRCA, the staff concurs that there is reasonable assurance that the intent of the EPA standards have been met. Land use restrictions should control access to the Th-230 deposit and ensure long-term protection of human health and the environment." (NRC, 1995).

It is important to point out that the Ra-226 cleanup criteria used in the Canonsburg remedial action is an EPA standard and this standard is not a dose-based standard. The cleanup criteria was established so that the soil Ra-226 level would not exceed 100 pCi/g in 1000 years. This value was chosen as being protective of groundwater (NRC, 1995).

After the remedial action was completed in 1996, the Commonwealth of Pennsylvania conveyed Areas A and B to the United States Government. The Commonwealth of Pennsylvania retained ownership to the Area C parcel until 2006, when the Area C parcel was sold to a private party. This action was performed in accordance with Section 104(e) of UMTRCA. Prior to the sale, the NRC worked with DOE and Pennsylvania to address groundwater and surface contamination issues in Area C. In June 2002, DOE provided an analysis supporting the removal of institutional controls on groundwater use at Area C (DOE, 2002). NRC concurred with DOE's analysis in April 2003 (NRC, 2003) and institutional controls on groundwater use were removed in Area C and Tract 117-E.

DOE worked with the Commonwealth of Pennsylvania to include a series of deed restrictions for all future owners of Area C. These deed restrictions were put in place to prevent exposure of the thorium anomalies that remained after completion of the remedial action. These deed restrictions include the following (DOE, 2008, Section 2.3.4 and Appendix B):

1. If a structure is to be built, the owner shall not excavate deeper than 4 ft. Excavations for utilities shall not exceed 6 ft. This is to prevent exposure of thorium anomalies which are at depths greater than 6 ft. Exceptions to this restriction require written approval from both DOE and the Pennsylvania Department of Environmental Protection (PDEP).
2. Use of ground water is not restricted.
3. The owner shall grant DOE access to one monitor well (MW-0424) and one surface water sampling location along Chartiers Creek on the east side of Area C.
4. The owner may not develop or use Area C for residential purposes.
5. The owner is advised to monitor structures for indoor radon levels.
6. The owner shall not compromise the integrity of the stream bank along Chartiers Creek.
7. The owner shall allow access for stream bank maintenance easement.

8. These restrictions shall endure in perpetuity. Except for Restriction 3, these restrictions may be removed by consensus decision of both DOE and PDEP. DOE may remove Restriction 3 without PDEP consensus.

In the September 2008 version of the LTSP, DOE indicates that the same deed restrictions identified above will be used for any future Canonsburg parcels that are sold. This would include the Tract 117-E parcel.

Note that deed restriction number 3 for Tract 117-E will be changed slightly to allow for access to monitor well MW-414.

DOE has also indicated that it will continue to inspect Tract 117-E in the same manner that Area C is currently inspected. This would include comparing the observed site conditions to verify that the site owner is complying with the deed restrictions. The annual inspection would also include examining Tract 117-E for evidence of erosion, settlement, changes along the stream bank, or any other changes that may impact the long term performance of the site.

The NRC has completed its review of DOE's revised LTSP for the Canonsburg site. This included a review of the documentation related to completion of the remedial action at the Canonsburg site. The Completion Report Review (NRC, 1995) addressed the Th-230 anomaly in Area C and concurred on the completion of the remedial action at Canonsburg. Additionally, the combination of clean fill overlying the thorium anomaly and deed restrictions related to property use, excavation and monitoring for radon provide adequate protection against exposure to radon. Therefore, the staff considers the proposed changes to the LTSP, which support the sale of Tract 117-E to be protective of public health and safety, acceptable. Accordingly, the NRC hereby accepts the Revised Canonsburg LTSP dated September 2008.

REFERENCES:

U.S. Department of Energy (1986) Canonsburg Uranium Mill Tailings Site Remedial Action Completion Report, Volumes I, II, and III. **[ADAMS Legacy Accession No. 8701270204]**

U.S. Department of Energy (1995) Long-Term Surveillance Plan (LTSP) for the U.S. Department of Energy Uranium Mill Tailings Disposal Site at Canonsburg, Pennsylvania. Revision 0. **[ADAMS Legacy Accession No. 9511070334]**

U.S. Department of Energy (2002) Request for NRC Approval to Authorize Deletion of Institutional Controls at Area C of Canonsburg Site, dated June 5, 2002 **[ADAMS Accession No. ML021680243]**

U.S. Department of Energy (2008) Long-Term Surveillance Plan (LTSP) for the U.S. Department of Energy Uranium Mill Tailings Disposal Site at Canonsburg, Pennsylvania. Revision 0. dated September 2008 **[ADAMS Accession No. ML082760528]**

U.S. Nuclear Regulatory Commission (1995), Correspondence from NRC Office of Nuclear Material Safety and Safeguards to Department of Energy, concurs that DOE performed remedial action at the Canonsburg site, August 14, 1995 **[ADAMS Legacy Accession No. 9508250189]**

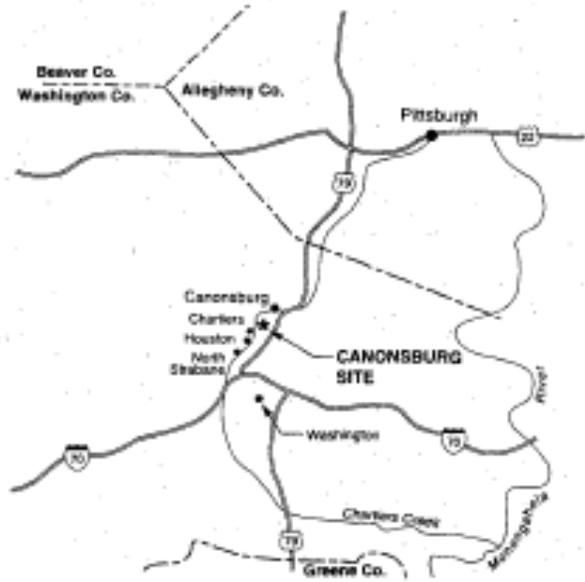
U.S. Nuclear Regulatory Commission (1996), Correspondence from NRC Office of Nuclear

Material Safety and Safeguards to Department of Energy, accepts long term surveillance plan for Canonsburg site, January 16, 1996 **[ADAMS Legacy Accession No. 9601230331]**

U.S. Nuclear Regulatory Commission (2003) Correspondence from Susan Frant to Art Kleinrath, DOE concerning Review of Request for NRC Approval to Authorize Deletion of Institutional Controls (Area C) at Canonsburg, Pennsylvania. Dated April 28, 2003 **[Adams Accession No. ML031200553]**

Tract No.	Acreage	Instrument Type	Instrument Date
101	0.68	DT	3/20/84
102	0.44	DT	3/27/84
103	3.07	WD	12/14/83
104	0.26	WD	12/14/83
106-1	0.28	WD	11/29/83
106-2	0.52	WD	11/29/83
107	0.27	WD	12/13/83
108	0.12	WD	12/13/83
109	0.05	WD	12/14/83
112	0.90	WD	11/29/83
113	6.15	WD	5/31/84
114	1.23	WD	12/22/83
116-1	0.62	VACATED WARD STREET	
116-2	1.57	VACATED GEORGE STREET	
117	3.28	OCD	11/7/84
125ML	17.85	DT	2/1/85

Table 1
Additional "Non-Designated" Properties Acquired
Canonsburg Site (from DOE, 1995)



LEGEND

- INTERSTATE HIGHWAY
- U.S. HIGHWAY

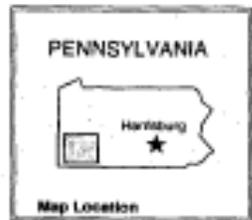


Figure 1
Location Map
Canonsburg Site (from DOE, 2008)

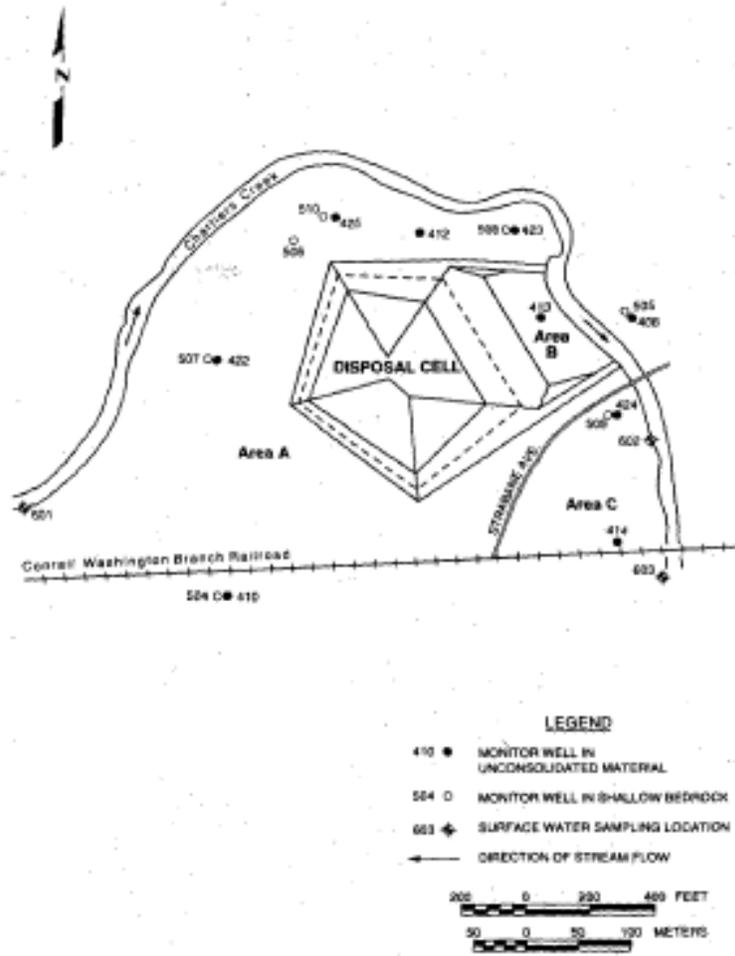


Figure 2
Locations of Monitoring Wells and Surface Water Sampling Points
Canonsburg Site (from DOE, 2008)

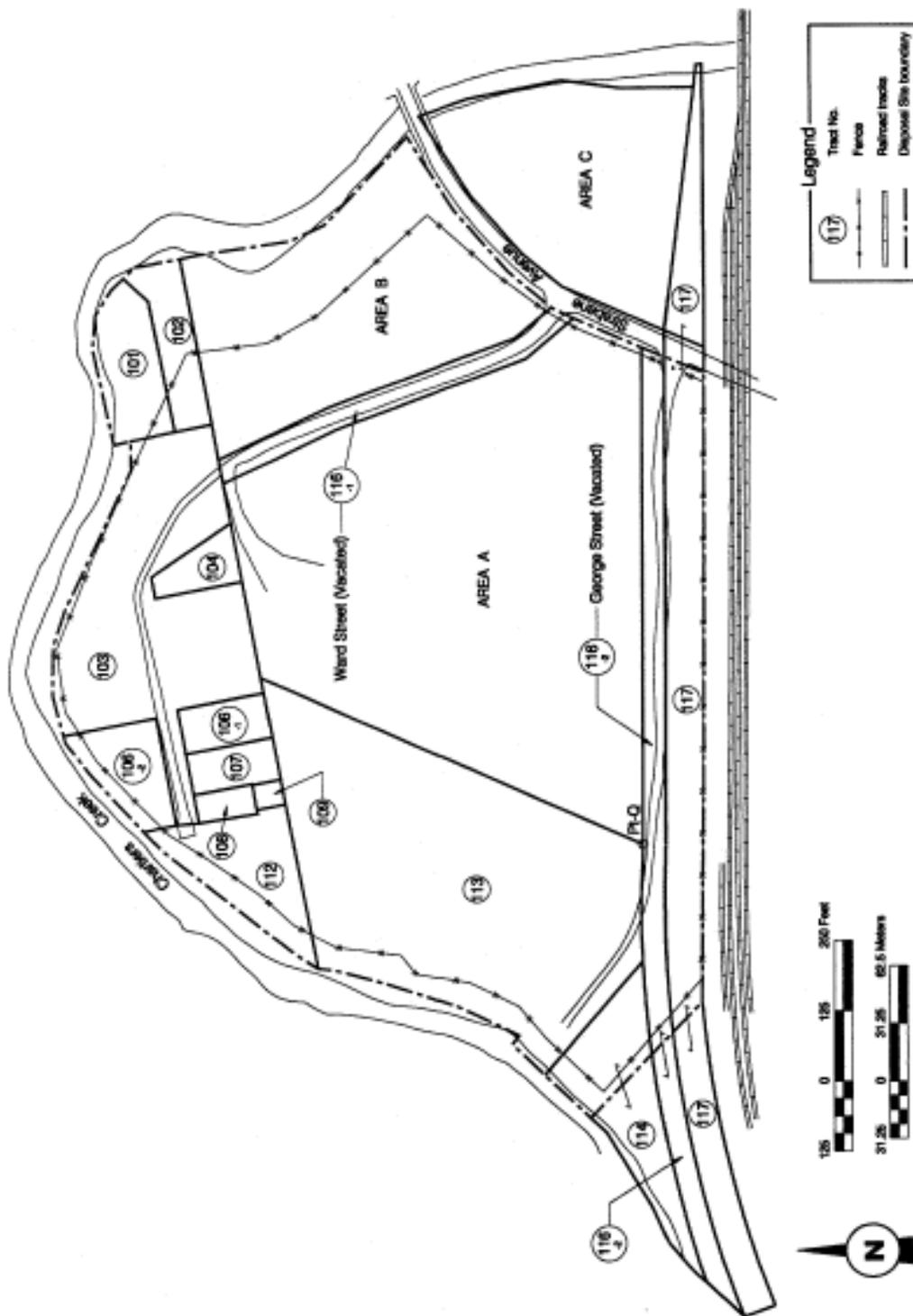


Figure 3
Tract Map
Canonsburg Site (from DOE, 1995)