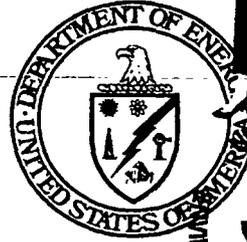


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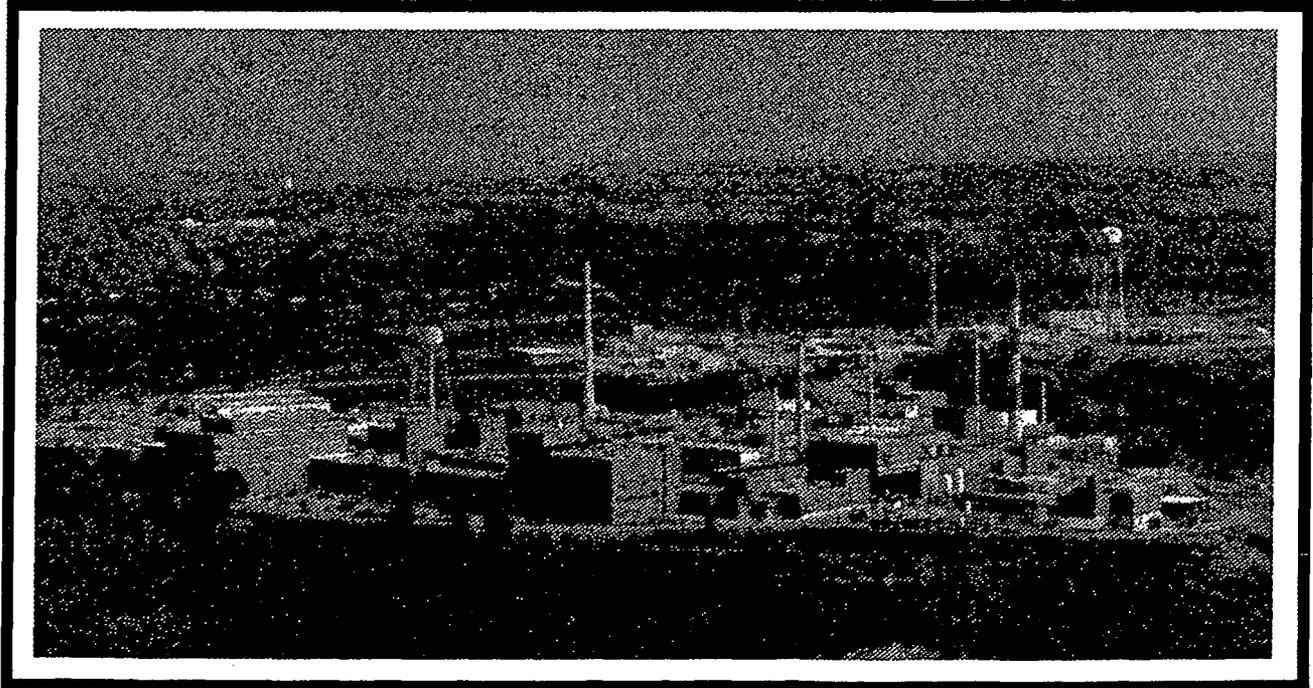


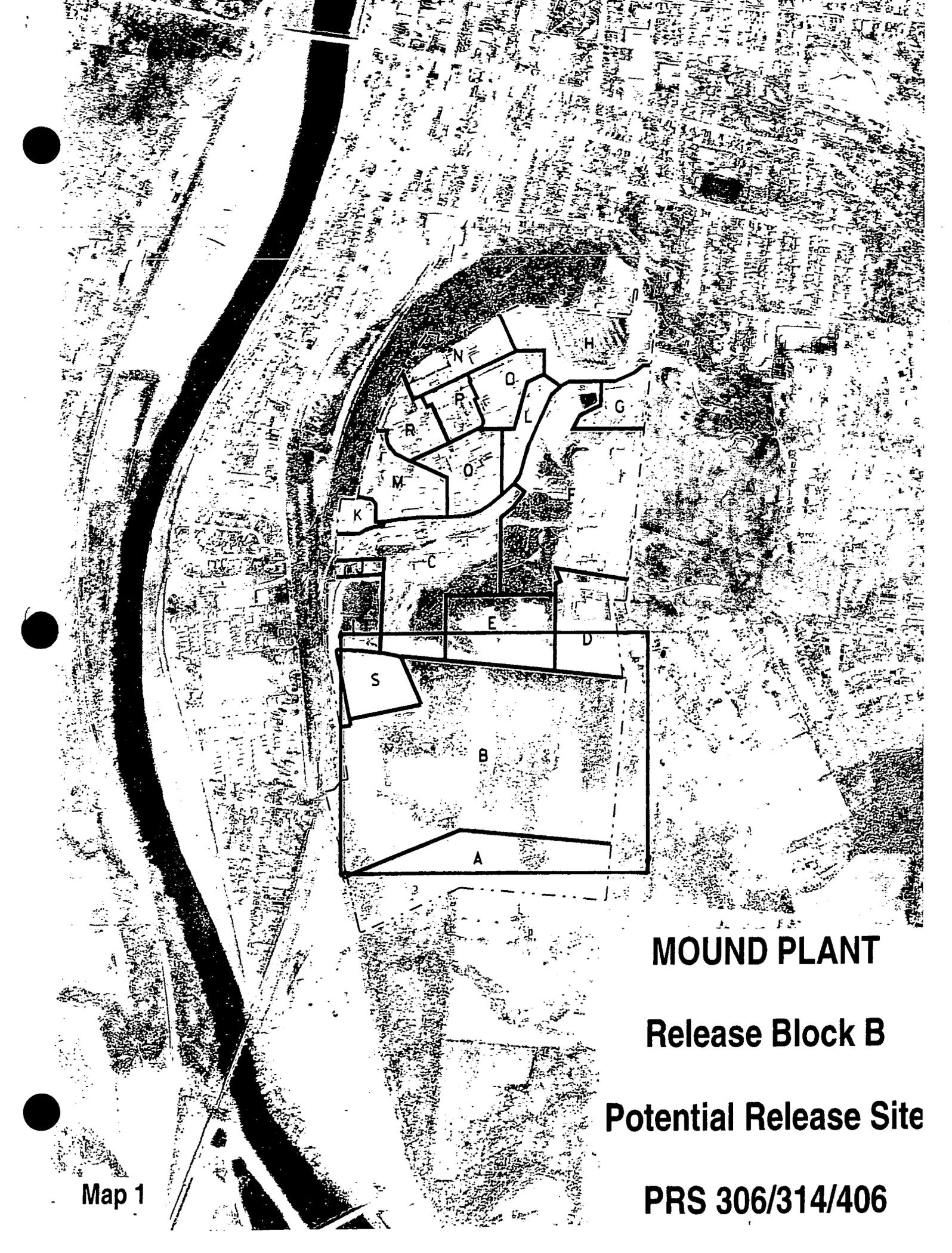
OhioEPA

MOUND PLANT

Potential Release Site Package

PRS # 306/314/406





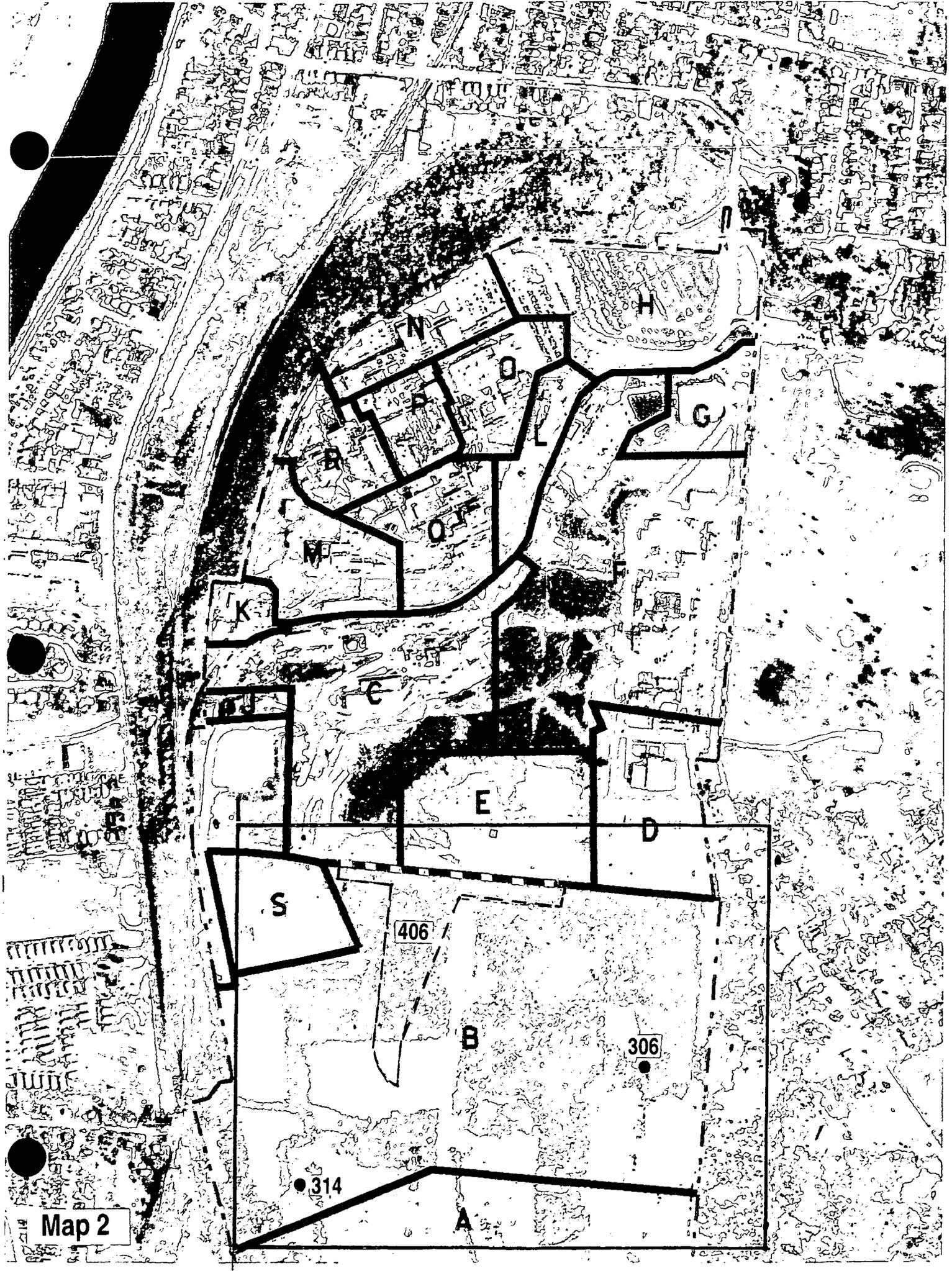
MOUND PLANT

Release Block B

Potential Release Site

PRS 306/314/406

Map 1



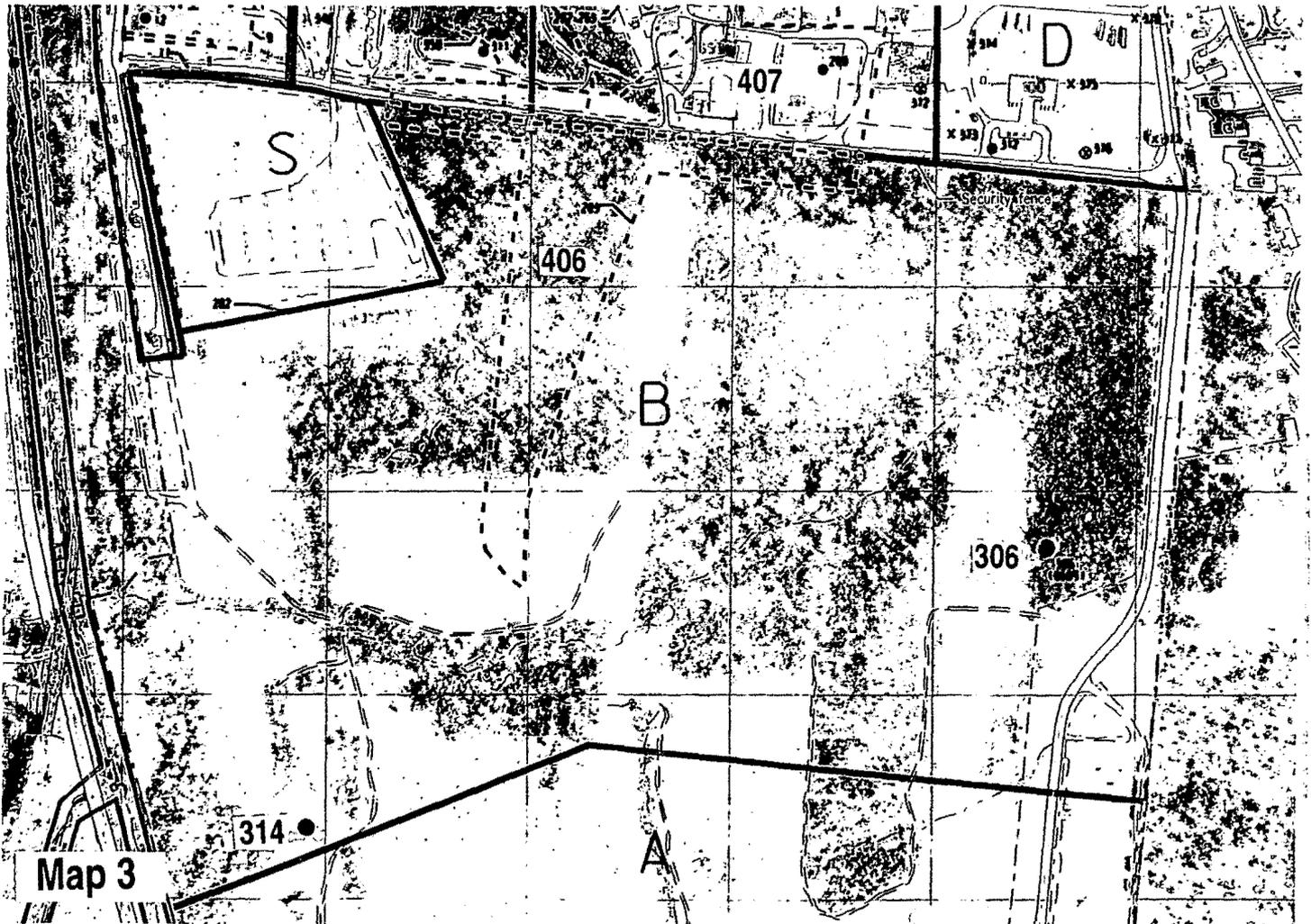
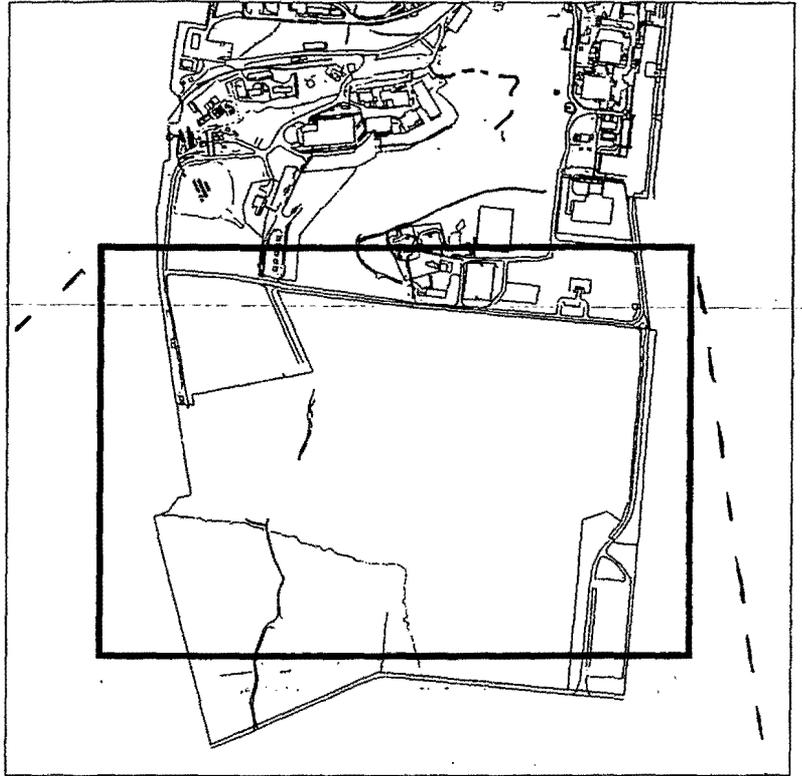
Map 2

MOUND PLANT

Release Block B

Potential Release Site

PRS 306/314/406



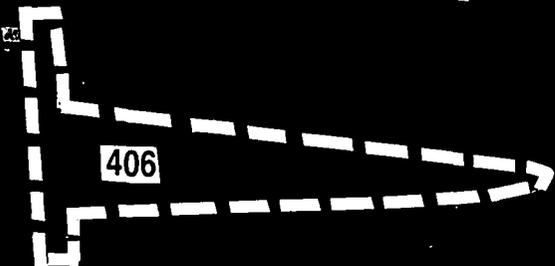
Map 3

Map 4

306

406

314



PRS 306/314/406

PRS HISTORY:

PRS 306, is a groundwater seep (seep 0609/0610). This seep is not suspected as a source of contamination to the groundwater.¹ The seep is a surface expression of groundwater and could be an exposure point to possible contaminated groundwater if contamination exists. At the time the PRS 306 was described¹ it was the only documented seep on the new property and the water quality at the seep was unknown. For this reason it was retained as a PRS until the groundwater quality could be analyzed.

PRS 314, the Farm Trash Area was identified as a potential release site as a result of historical information which suggests that waste oil from farm operations may have contaminated this area prior to Mound Plant's purchase of the property.²

PRS 406 is located on the southern end of the Mound Plant operational area and on the northern end of the New Property (Release Block B). Radiological surveys conducted in 1983² indicated potential radiological contamination. This historical information lead to the Superfund Remedial Investigation⁶ effort for the Operable Unit 5 New Property. For the purpose of evaluating Release Block B, only data acquired as a result of the Remedial Investigation is referenced in this data package.⁶

PROCESS DESCRIPTION:

No Mound Plant buildings are presently located in Release Block B. No Mound Plant related radioactive or hazardous waste generating processes are known to have occurred at the location of the Potential Release Sites within Release Block B. Soil erosion from areas north of PRS 406 may have provided a mechanism for the suspected radiological contamination of this PRS. Evidence of farm trash disposal is noted at PRS 314.¹ There are no known sources of groundwater contamination within Release Block B.

CONTAMINATION:

Contamination in soils and sediment is generally present at levels indistinguishable from background.⁶ All radiological concentrations reported in release block B were below guideline criteria:

Radiological Contaminant	Maximum Concentration Detected	Guideline Criteria
Plutonium	21.9 pCi/g ⁶ (in soil)	25 pCi/g (Mound ALARA in soil)
Thorium	3.8 pCi/g ⁶ (in soil)	5 pCi/g ⁸
Radium	3.0 pCi/g ⁶ (in soil)	5 pCi/g ⁸
Uranium	0.21 pCi/g ⁶ (in soil)	3.35 pCi/g ⁷

NOTE: pCi/g = picocuries contaminant per gram soil, CFR = Code of Federal Regulations

Twenty groundwater samples were collected from four monitoring wells, two borings, and eight seeps in Release Block B⁶. Sample results detected TCE from well 411 and seep 617 at the MCL (8 ppb). Only infrequent and scattered occurrences of Arsenic (As), Manganese (Mn), Nickel (Ni) and Chromium (Cr) are above background criteria; these metals do not appear to originate in current or past activities on the New Property. As, Cr, Mn, and Ni, are the only contaminants which are above US EPA's noncarcinogenic hazard quotient of one. All contaminants with the exception of Arsenic, which is detected only once, fall within US EPA's target acceptable risk range of one in a million to one in ten thousand for carcinogenic risk.⁷ No plumes of contaminated groundwater were identified.

READING ROOM REFERENCES:

- 1) Operable Unit 9, Site Scoping Report: Volume 12 - Site Summary Report, Final, December 1994.
- 2) Operable Unit 9, Site Scoping Report: Volume 3 - Radiological Site Survey, Final, June 1993.
- 3) RI/FS Work and Sampling Plan Operable Unit 5, New Property Addendum, Draft Final Revision 0, April 1994.
- 4) Operable Unit 5, New Property Phase 1 Field Report, Final Revision 1, July 1995.
- 5) Operable Unit 5, New Property Extended Phase 1 Field Report, Final Revision 0, July 1995
- 6) Operable Unit 5, New Property Remedial Investigation Report, Final (February, 1996).

OTHER REFERENCES:

- 7) Risk Based Soil Guideline Values, December 1995, Final, Revision 3.
- 8) Code of Federal Regulations, 40 CFR192.12 and 40 CFR192.41.

PREPARED BY:

Alec Bray, Member of EG&G Technical Staff
George Liebson, Member of EG&G Technical Staff

SUPPLEMENTAL INFORMATION:

Joseph C. Geneczko, Member of EG&G Technical Staff

MOUND PLANT
PRS 306, 314, 406
SOUTH PROPERTY - RELEASE BLOCK B

RECOMMENDATION:

Potential Release Site (PRS) 406 (previously known as the southern portion of PRS 283) became a PRS due to potential thorium dust from the thorium sludge redrumming, PRS 306 due solely to being an uncharacterized seep, and PRS 314 due to historical information suggesting possible waste oil contamination. These three (3) PRSs constitute the PRSs for Release Block B.

Radionuclides detected in soils at the New Property were scattered and infrequent and all occurrences were below the 10^{-5} risk guideline value. All organic concentrations in soil were below the 10^{-5} risk guideline values. Radionuclides detected in groundwater were all below the 10^{-5} guideline values. All organic contaminants in groundwater met drinking water standards, with the exception of TCE which was reported at 8 parts per billion (ppb) which is slightly above the MCL of 5 ppb. The area is to be used for industrial purposes, therefore, no drinking wells would be placed on the property in the bedrock.

The observed scattered occurrences and variations of metals in soil concentrations are typical natural occurrences in the vicinity of the Mound Plant. This type of variation was also documented in groundwater in the Operable Unit 9 Residential, Municipal and Industrial Well Investigation Technical Report, April, 1995. The risks of drinking groundwater from bedrock off-site are comparable to the risks of drinking groundwater from bedrock on-site (refer to page 7.1 of the PRS package). As shown in this table, the risks from carcinogenic contaminants in the on-site bedrock groundwater are the same as the risks from carcinogenic contaminants in off-site, background bedrock groundwater. In the case of non-carcinogenic contaminants in on-site bedrock groundwater, the contaminant concentrations are within the expected variations from background as found in the Residential, Municipal and Industrial Well Investigation Report. A single detection of arsenic was the only detection above the USEPA risk value of 10^{-4} , and the New Property Remedial Investigation Report (RIR) concluded "risks due to arsenic in background soils are greater than risks associated with the New Property."

Based upon the risk assessment conclusions in the RIR and existing data showing no evidence of contamination, NO FURTHER ASSESSMENT is recommended for PRSs 406, 306, and 314.

CONCURRENCE:

DOE/MB:

Arthur W. Kleinrath 3/12/96
Arthur W. Kleinrath, Remedial Project Manager (date)

USEPA:

Timothy J. Fischer 3/11/96
Timothy J. Fischer, Remedial Project Manager (date)

OEPA:

Brian K. Nickel 3/14/96
Brian K. Nickel, Project Manager (date)

SUMMARY OF COMMENTS AND RESPONSES:

Comment period from March 18, 1996 to April 1, 1996.

- No comments were received during the comment period.
- Comment responses can be found on page _____ of this package.

REFERENCE MATERIAL
PRS 306/314/406

Environmental Restoration Program

**OPERABLE UNIT 5
NEW PROPERTY REMEDIAL INVESTIGATION
REPORT**

**MOUND PLANT
MIAMISBURG, OHIO**

February
~~January~~ 1996

~~Draft~~ Final



**U.S. Department of Energy
Ohio Field Office**

EG&G Mound Applied Technologies

Table ES.1. Summary of Human Health Risks

CONTAMINANTS	COC?	PATHWAY	SCENARIO	SITE RISK		BACKGROUND RISK	
				Noncancer ⁽¹⁾	Cancer ⁽²⁾	Noncancer	Cancer
SOIL/SEDIMENT							
Benzo(a)pyrene	Yes	dermal	current trespasser	NA	1.22E-6	NA	NA
			future industrial	NA	1.65E-5	NA	NA
Benzo(b)fluoranthene	Yes	dermal	future industrial	NA	2.37E-6	NA	NA
Dibenzo(a,h)anthracene	Yes	dermal	future industrial	NA	1.92E-6	NA	NA
Indeno(1,2,3-cd)pyrene	Yes	dermal	future industrial	NA	1.13E-6	NA	NA
Arsenic	No ⁽³⁾	dermal	future industrial	NA	6.81E-6	NA	7.44E-6
		ingestion		NA	2.41E-6	NA	2.63E-6
Mercury	No ⁽³⁾	dermal	future industrial	1.54	NA	2.84	NA
			future excavation	1.51	NA	2.83	NA
Manganese	No ⁽³⁾	inhalation	future excavation	1.58	NA	2.54	NA
GROUNDWATER							
Beryllium	Yes	ingestion	future adult	NA	2.73E-5	NA	1.21E-5
			future child	NA	1.27E-5	NA	5.65E-6
Chromium	Yes	ingestion	future adult	1.69	NA	NA	NA
			future child	3.95	NA	1.74	NA
Manganese	Yes	ingestion	future adult	38.4	NA	1.17	NA
			future child	89.5	NA	2.74	NA
		dermal	future adult	2.76	NA	NA	NA
			future child	4.25	NA	NA	NA
Nickel	Yes	ingestion	future child	1.26	NA	NA	NA
Arsenic	Yes	ingestion	future adult	6.05	1.17E-3	2.57	4.96E-4
			future child	14.1	5.45E-4	6.00	2.32E-4
		dermal	future adult	NA	9.55E-6	NA	4.06E-6
			future child	NA	2.95E-6	NA	1.25E-6
Americium-241	Yes	ingestion	future adult	NA	2.37E-6	NA	NA
Radium-226	No ⁽³⁾	ingestion	future adult	NA	2.22E-6	NA	2.57E-6
Tritium	No ⁽³⁾	ingestion	future adult	NA	2.01E-6	NA	2.07E-6

- (1) Noncarcinogen Hazard Quotient (HQ) effects. Per EPA guidance, noncarcinogenic risk is present if HQ exceeds 1.0.
- (2) Excess lifetime cancer risk. Per EPA guidance, cancer risk is present if excess lifetime cancer risk exceeds 1.0E-6.
- (3) Contaminant exceeded EPA risk levels for cancer (1.0E-6) and/or noncancer (1.0) but risk associated with contaminant at site is indistinguishable from risk associated with contaminant in background.
- Note: The greatest cancer risk associated with plutonium-238 is 1.00E-7 (ingestion - future industrial). The greatest cancer risk associated with thorium is 3.40E-8 (inhalation - future excavation).
- NA Not applicable because HQ <1 or cancer risk <1.0E-6 or not calculated

Summary of Human Health Risks as Compared to Residential Bedrock Wells

CONTAMINANTS	COC?	PATHWAY	SCENARIO	SITE RISK		BACKGROUND RISK (4)	
				Noncancer (2)	Cancer (1)	Noncancer	Cancer
GROUNDWATER							
Chromium	Yes	ingestion	future adult	1.69	NA	0.57	NA
			future child	3.95	NA	1.33	NA
Manganese	Yes	ingestion	future adult	38.4	NA	26.2	NA
			future child	89.5	NA	61.2	NA
		dermal	future adult	1.92	NA	1.31	NA
			future child	3.40	NA	2.33	NA
Nickel	Yes	ingestion	future child	1.26	NA	0.0796	NA
Arsenic	No ⁽³⁾	ingestion	future adult	6.05	NA	7.67	NA
			future child	14.1	6.36E-4	17.9	8.05E-4
		dermal	future adult	NA	6.65E-6	NA	8.42E-6
			future child	NA	2.36E-6	NA	2.99E-6
Radium-226	Yes	ingestion	future adult	NA	2.67E-6	NA	2.39E-6

- (1) Excess lifetime cancer risk. Per EPA guidance, cancer risk is present if excess lifetime cancer risk exceeds 1.0E-6.
- (2) Noncarcinogen Hazard Quotient (HQ) effects. Per EPA guidance, noncarcinogenic risk is present if HQ exceeds 1.0.
- (3) Contaminant exceeded EPA risk levels for cancer (1.0E-6) and/or noncancer (1.0) but risk associated with contaminant at site is less than risk associated with contaminant in background.
- (4) Risk Calculations based upon the Residential, Municipal and Industrial Well Investigation Technical Report, April, 1995.
- NA Not applicable or not calculated

ES.7. CONCLUSIONS

The RI at the New Property was performed to characterize the nature and extent of contamination, determine the potential for contaminant migration, evaluate risk to human health and the environment, and provide data necessary to assess the need for site remediation.

The conclusions of this RI Report are:

- Radionuclides were detected in soils and groundwater at the New Property; however, concentrations were low and occurrences were infrequent. Radionuclides, including plutonium, thorium, and tritium, are not significant contaminants at the New Property because they do not pose risk to human health or the environment.
- With the exception of isolated high concentrations of metals in the former "farm trash area," contaminants that were detected in groundwater and seeps do not appear to have a source within the New Property. Groundwater occurrences of contamination do not have apparent relationships to soil occurrences of the same contaminants (Section 4). Consequently, the New Property does not appear to be impacting the quality of the groundwater resources in the area.
- Metals and PAHs are ubiquitous in soils; therefore no relation can be drawn between their occurrence at the New Property and operations at the Mound Plant. Although past Mound Plant activities may have contributed to metals and PAH contamination at the site, offsite sources may also be contributing to the occurrence of these compounds at the New Property. For example, arsenic was found in both soils and groundwater at concentrations that cause risks within EPA target ranges. However, the risks due to arsenic in background soils are greater than risks associated with the New Property (see Table ES.1).

In some cases, New Property risks appear to be higher than the background risks; in others, background risks appear to be higher. Thus, differences between background and New Property risks are not sufficiently large to require remediation at the New Property.

Supplementary Information

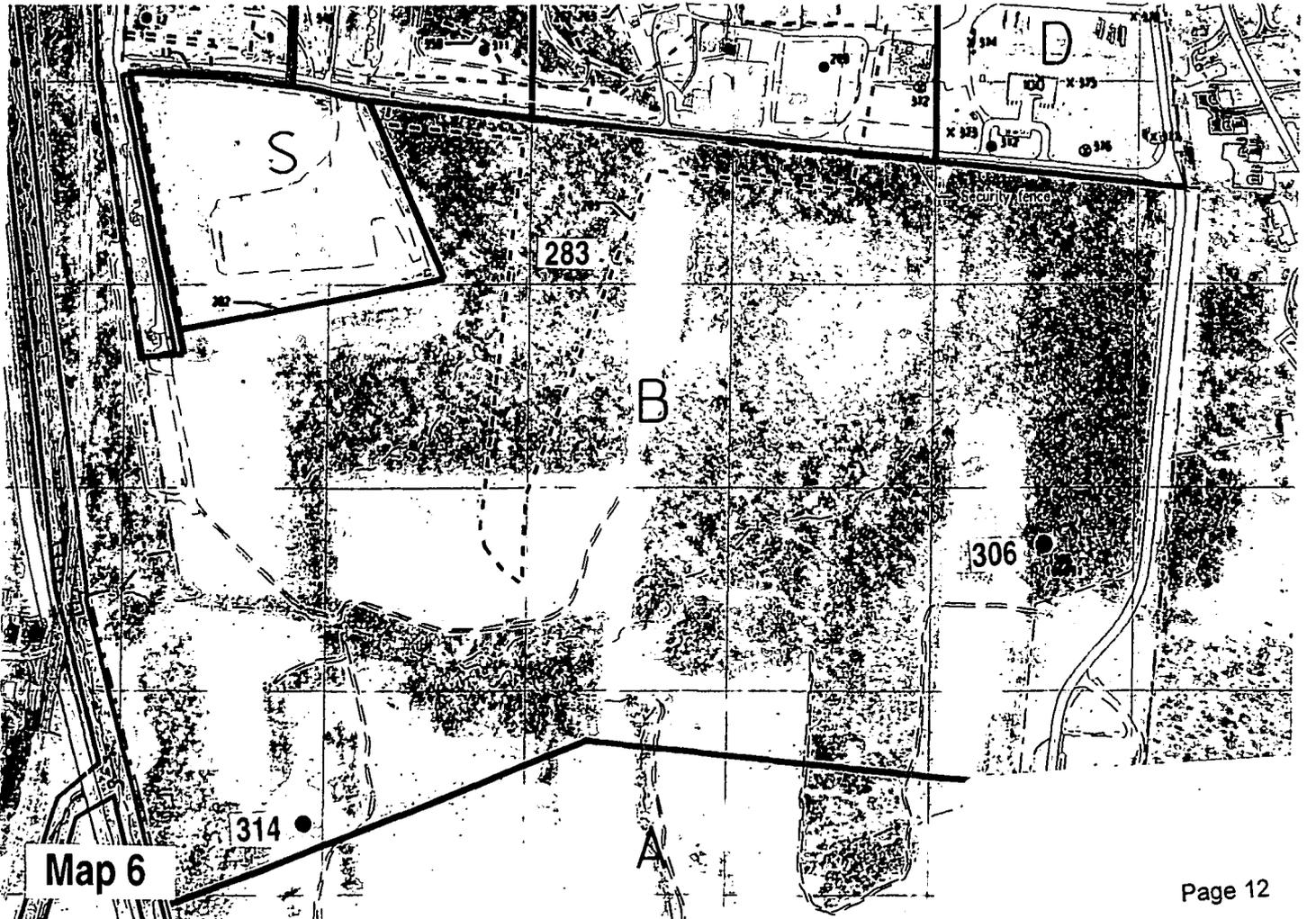
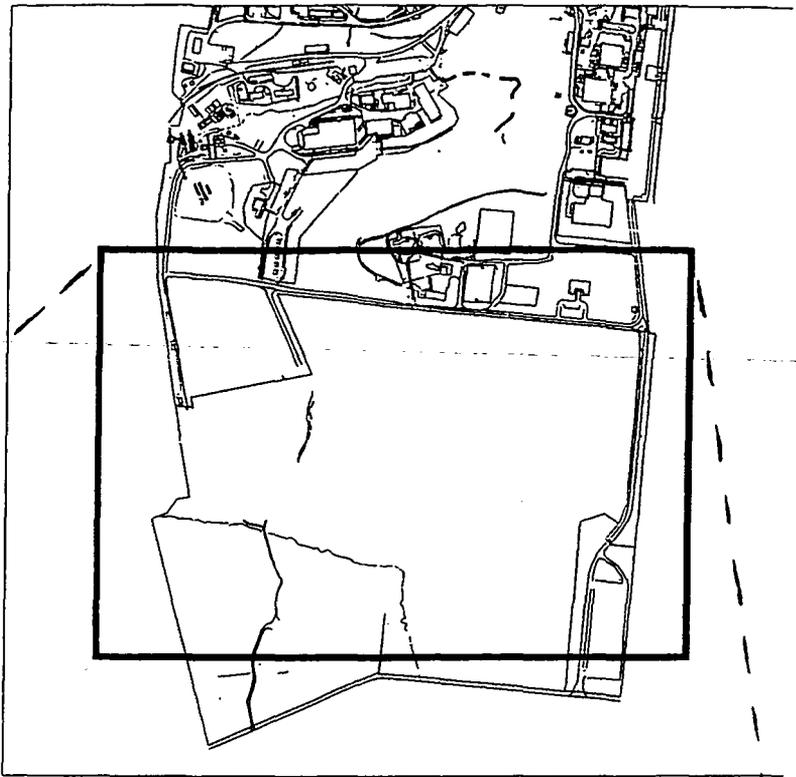
EG&G PRS Program Manager Note

This PRS 306/314/406 encompasses all PRS's in Release Block B. Early PRS identification processes placed an original PRS 283 to include the current PRS 406 and an area north of PRS 406. Please compare Map 2 to Map 5 (Supplemental). Also, please compare Map 3 to Map 6 (Supplemental). In the conduct of PRS research, it was realized that the goal of releasing Mound Plant property would be better served by addressing the northern and southern areas of PRS 283 individually. Established baseline computer tracking methodology prevented the sequential maintenance of the newly defined PRS 283, for example as PRS 283N (North) and PRS 283S (South). It was decided to create the two new PRS numbers in numerical sequence with the established tracking system. PRS 406 and 407 were introduced into the baseline. This numerical identification is administrative in nature only.

Joseph C. Geneczko



Map 5



Map 6

PRS 306/314/406

REV	DESCRIPTION	DATE
DRAFT		Feb. 5, 1996 (283/306/314)
REGULATOR RELEASE A	Complete combining PRS into one package	Feb. 7, 1996 (283/306/314)
REGULATOR RELEASE B		
PUBLIC RELEASE 0 REVISED 2-29-96 JCG	<p>ADDED:</p> <ul style="list-style-type: none"> - Comparisons of max rad concentrations to guideline criteria. - Risk Based Guideline Values (reference). - TCE detections in well 411 and seep 617. <p>CHANGED:</p> <ul style="list-style-type: none"> - to PRS 306/314/406 - Narrative format changed accordingly <p>ADDED:</p> <ul style="list-style-type: none"> - Supplementary Information 	Feb. 22, 1996 (283/306/314)
FINAL 0	<p>Revised recommendation page to document:</p> <ol style="list-style-type: none"> (1) The expiration date for the public comment period has expired. (2) The fact that no public comments were received. 	Apr. 22, 1996