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PRELIMINARY HEALTH ASSESSMENT
ONALASKA MUNICIPAL LANDFILL
LA CROSSE COUNTY
ONALASKA WISCONSIN
December 29, 1988

Prepared by:
WISCONSIN DIVISION OF HEALTH
MADISON WISCONSIN

State of Wisconsin

DEPARTMENT OF HEALTH
AND SOCIAL SERVICES

DIVISION OF HEALTH
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Prepared for:
OFFICE OF HEALTH ASSESSMENT
AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY (ATSDR)

SUMMARY:

The Town of Onalaska owns and operated Onalaska Municipal Landfill, located in La Crosse County, Wisconsin. Prior to capping t h e landfill in 1982, the equivalent of 2,500 drums of industrial solvent wastes along with other wastes are estimated to have been disposed on-site. Soils underneath the unlined disposal site are highly permeable. Studies showed that recurrent seasonal fluctuations in water levels allowed the groundwater to be in direct contact with a portion of the waste for extended periods of time.

Chemicals in the landfill leach into the groundwater which may eventually discharge into the adjacent wetlands and the Black River. Human exposure to contaminates from the site may occur via consumption of contaminated groundwater, fish or wild game, dermal absorption, inhalation, or from recreational activities on the Black River. It is recommended that the site access be fully restricted through the construction of a secure fence and that monitoring of groundwater, surface water, fish and game in areas adjacent to the site be performed on a scheduled basis. Residential wells should be evaluated for contamination and usage patterns.

BACKGROUND:

Bibliography of Data/Information Sources:

Document	Date of Document
1. Site Inspection Report	5/2/83
2. In-field Conditions Report	4/17/78
3. Preliminary Assessment	6/8/83
4. Report on Groundwater Monitoring	10/13/78
5. Field trip to Onalaska Landfill	9/7/82
6. Review of Groundwater Results	11/5/82
7. CH2M Hill Work Plan for RI/FS	8/88
8. Town of Onalaska Landfill, Enforcement and Remedial/Removal Activities Summary	No Date

Brief Description of Site:

The Onalaska Municipal Landfill is in La Crosse County, approximately 10 miles north of La Crosse, Wisconsin and 7 miles north-west of Onalaska, Wisconsin. The site is located near the confluence of the Mississippi River and within 400 feet of the Black River. The Town of Onalaska owned and operated the 11 acre landfill from 1969 - 1980. The landfill, sited on permeable soils, operated without surface water drain control or proper engineering plans and specifications. Adjacent to the site are farms, residences, a sportsman's club, and operational railroad tracks. Onalaska Municipal Landfill is reported to have accepted materials including waste solvents, naphtha, toluene, paint residues, industrial wastes, barium, inorganic chemicals, industrial waste oils, ink residues, municipal wastes, solid wastes, solvosol, asphaltum, mineral spirits, PTL-1009, transformer oil, gun oil, synthetic lubricants, insecticides and septic waste. Along with full barrels of solvent a 500 gallon tank truck partially filled with paint residues was buried at the site. In July 1982 a cap of compacted clay was placed on top of the landfill to prevent infiltration of rainwater. One residential well, 300 feet south of the site, was replaced because it exceeded Wisconsin drinking water standards for barium and five organic compounds.

SITE VISIT:

A site visit was conducted by Wisconsin Division of Health staff on August 30, 1988. The site is located in a rural, agricultural area with residential homes, a sportsman's club, and railroad tracks. There are no trespassing signs posted around site, a small metal shed on site, a locked gate at the opening of the site, and partial fence. There was evidence on-site that heavy farm machinery had harvested the grasses. The Black River is adjacent to the site. There was a bicycle path along the river and evidence of fishing, and other aquatic recreation, eg; boating, docks.

ENVIRONMENTAL CONTAMINATION AND PHYSICAL HAZARDS:

ON-SITE CONTAMINATION:

Principal contaminants of concern in the groundwater include Trichloroethylene, Naphtha, Barium, 1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, Toluene, 1,1-Dichloroethane, Xylene, and Ethyl Benzene.

OFF-SITE CONTAMINATION:

Sampling of residential and monitoring wells has shown groundwater concentrations exceeding drinking water standards or criteria for Trichloroethylene, Barium, 1,1,1-Trichloroethane, 1,1-Dichloroethane, 1,1,2,2-Tetrachloroethane Toluene, Xylene, and Ethylbenzene. Concentrations of VOCs in one sampling well at the southwest perimeter of the site were orders of magnitude greater than other wells. Six existing monitoring wells are not secured with locking caps, therefore, it is possible that vandals could intentionally contaminate a well.

PHYSICAL HAZARDS:
None identified.

DEMOGRAPHICS:

Distance to the closest residence is within 300 feet of the landfill, a population of 321 lives within a one mile radius of the site.

EVALUATION:

SITE CHARACTERIZATION:

ENVIRONMENTAL MEDIA:

Available information indicates that groundwater has been and is currently contaminated from site leachate. It is possible that surface water and soils may also be contaminated. Contaminants may be escaping from the site if the cap has been ruptured (heavy farm machinery has been used to harvest grasses), resulting in possible air contamination. Additional data needed include current on-site and off-site air monitoring, groundwater monitoring, soil sampling, river sediment water and biota sampling, and environmental fate and transport modeling.

LAND USE:

Determination of recreational uses of surrounding rivers and wetlands should be done. Investigate uses of landfill cap vegetation. Conduct fish consumption survey.

QUALITY CONTROL AND QUALITY ASSURANCE:

Data from the Wisconsin Department of Natural Resources has Quality Assurance approval. The Work Plan for the Remedial Investigation/Feasibility Study (RI/FS), calls for preparing a Quality Assurance Project Plan.

ENVIRONMENTAL PATHWAYS:

Potential environmental pathways may include:
1. On-site and off-site groundwater contamination.
2. Off-site surface water.
3. On-site and off-site soil.
4. On-site and off-site air.
5. Contact with or ingestion by animals of cap grasses.
6. Contaminant discharge from groundwater into river with potential uptake by biota and deposition in water and sediments.

Groundwater flow during the majority of the year is to the south-southwest, toward one residential well and the wetlands bordering the Black River. Groundwater discharges from the site into the upper Mississippi River Wildlife and Fish Refuge which borders the Black River and Lake Onalaska. During the spring, runoff and groundwater flow is towards the south-southeast away from river. At times of high groundwater levels, groundwater may be in direct contact with the waste.

HUMAN EXPOSURE PATHWAYS:

Potential human exposure pathways include ingestion and dermal absorption of contaminants in groundwater, or inhalation of contaminants that volatilize from groundwater (E.g., from showers and washing machines). Other possible routes for exposure include 1) dermal absorption of contaminants in surface water and soil, 2) inhalation of contaminants in wind blown dust or of volatile compounds in air, and 3) ingestion of contaminated fish or game. Until additional water, soil and air samples are collected and analyzed, the potential for these pathways cannot be determined.

PUBLIC HEALTH IMPLICATIONS:

Based on the available information this site is considered to be of potential public health concern. Potential human health risks could be caused by movement of landfill contaminants into the groundwater, soil, air or surrounding surface waters. Humans coming into contact with potentially contaminated air, water, soil or aquatic biota could be exposed to landfill contaminants at levels of health concern. For example, risks to human health could occur via chemicals in the landfill leachate migrating off-site

into nearby residential wells and the Black River. Since the potential exists for contaminated air to be escaping through the cap, and the cap grasses and soil may be contaminated by chemicals originating in the landfill, human activities on the cap surface could pose a risk to humans working on the cap. There is evidence of tire tracks and cut grasses suggesting that the site grasses have been harvested. To prevent human activity on the potentially contaminated cap, access to the site should be restricted by construction of a fence.

CONCLUSIONS AND RECOMMENDATIONS:

It is recommended that site access be restricted to ensure unauthorized persons will not get on-site. Additional monitoring of groundwater and surface water on and around the site should be conducted. Testing of landfill leachate for contaminant breakdown into water soluble materials or gas should be performed. The private wells including replacement well, should be evaluated for contamination. If sufficiently high levels of contamination are found, an alternate water supply should be recommended. Data should be gathered to determine if the landfill leachate discharges into the river and potential effects on persons using the river for recreational purposes. Aquatic organisms should be evaluated to determine if they pose a food chain exposure risk to consumers of potentially contaminated aquatic organisms.

Based on the available information, this site is considered to be of potential public health concern because of the risk to human health caused by the possibility of exposure to hazardous substances via air, groundwater usage or discharge into surrounding waterways.

Further environmental characterization and sampling of the site and impacted off-site areas during the Remedial Investigation and Feasibility Study (RI/FS) should be designed to address the environmental and human exposure pathways discussed above. When additional information and data become available through ATSDR, (e.g., the completed RI/FS), such material will form the basis for further assessment by the State at a later date.

PREPARERS OF REPORT:

Karen Dixon

David A. Belluck

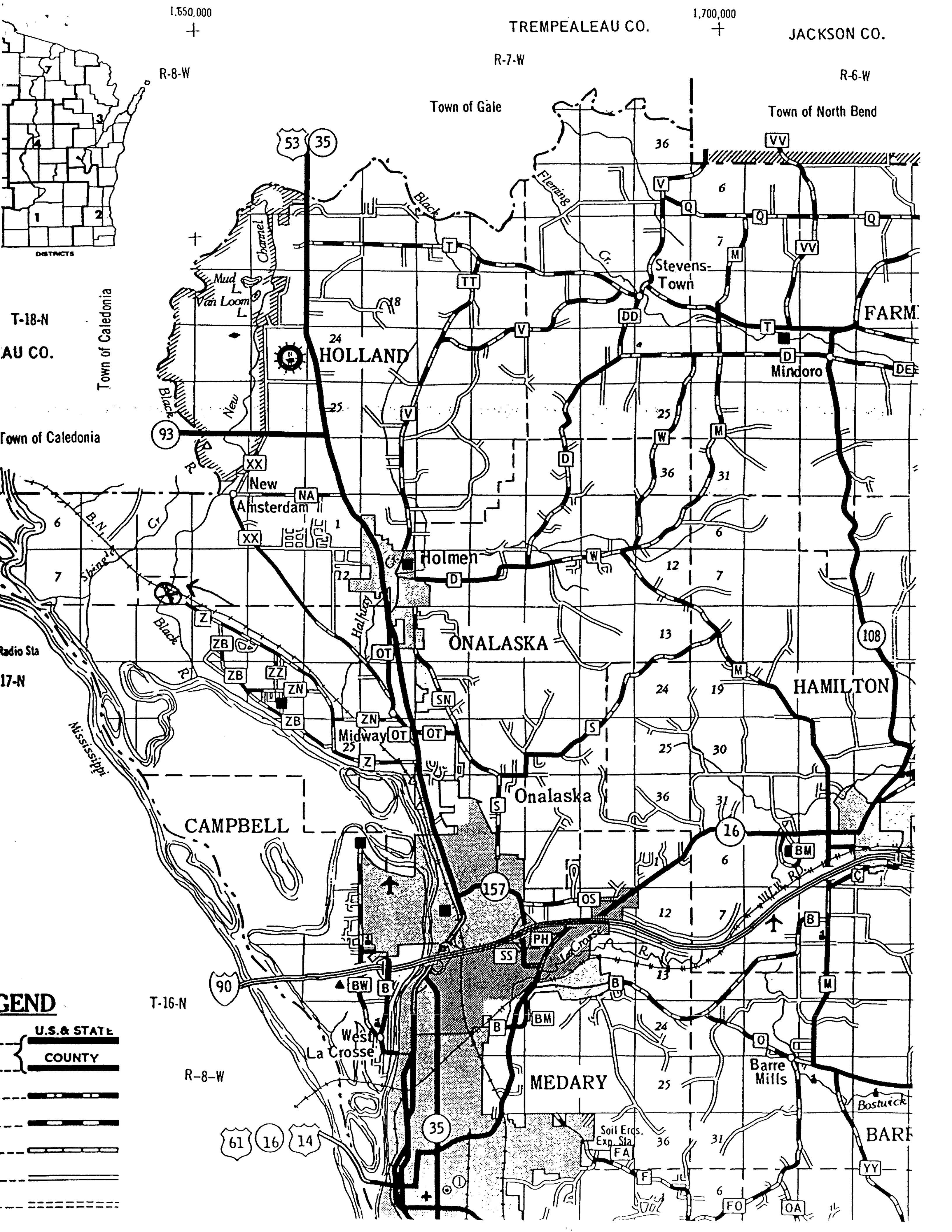
12/28/88

28-Jul-88

GROUNDWATER CONCENTRATIONS EXCEEDING DRINKING WATER STANDARDS OR CRITERIA
ONALASKA SITE

Well	Date	Chemical	Concentration ug/l	Standard or Criteria Exceeded	Standard/ Criteria Level ug/l
Miller	3-11-86	Trichloroethene	4	MCLG	0
				WQC-Risk	2.8
		Barium	1980	MCL	1000
	9-16/17-86	1,1,2,2-Tetrachloroethane	0.41	WQC-Risk	0.17
		Trichloroethene	2.1	MCLG	0
		Barium	1060	MCL	1000
	3-15-88	Trichloroethene	0.41	MCLG	0
Well #2A	3-11-86	Barium	2050	MCL	1000
	9-16/17-86	Barium	1090	MCL	1000
	3-15-88	Barium	1800	MCL	1000
Well #3A	3-11-86	Barium	1410	MCL	1000
	9-16/17-86	Trichloroethene	0.14	MCLG	0
	3-15-88	Trichloroethene	0.11	MCLG	0
Well #4	3-11-86	1,1,-Dichloroethene	36	MCL	7
				MCLG	7
				DWHA	7
				WQC-Risk	0.33
		Trichloroethene	0.66	MCLG	0
		Toluene	13641	Prop-MCLG	2000
				DWHA	2420
		Xylene	1640	Prop-MCLG	440
				DWHA	400
	9-16/17-86	1,1,-Dichloroethene	1.86	WQC-Risk	0.33
		1,1,1-Trichloroethane	340	MCL	200
				MCLG	200
				DWHA	200
		Trichloroethene	0.99	MCLG	0
		1,1,2,2-Tetrachloroethane	520	WQC-Risk	0.17
		Toluene	16108	Prop-MCLG	2000
				WQC-TOX	15000
				DWHA	2420
		Ethylbenzene	10509	Prop-MCLG	680
				WQC-TOX	2400
				DWHA	3400
		Xylene	71065	Prop-MCLG	440
				DWHA	400
	3-15-88	1,1,-Dichloroethene	3	WQC-Risk	0.33
		Trichloroethene	0.65	MCLG	0
		1,1,2,2-Tetrachloroethane	944	WQC-Risk	0.17
		Toluene	13653	Prop-MCLG	2000
				DWHA	2420
		Xylene	1507	Prop-MCLG	440
				DWHA	400
4 Deep	3-11-86	1,1,-Dichloroethene	5	WQC-Risk	0.33
		Toluene	13641	Prop-MCLG	2000
				DWHA	2420
		Xylene	1208	Prop-MCLG	440
				DWHA	400
		Barium	1610	MCL	1000
	9-16/17-86	Trichloroethene	0.82	MCLG	0
		1,1,2,2-Tetrachloroethane	7.68	WQC-Risk	0.17
		Xylene	621	Prop-MCLG	440
				DWHA	400
	3-15-88	Trichloroethene	0.11	MCLG	0

CRITERIA KEY:
- MCL - Maximum Contaminant Level
- MCLG - Maximum Contaminant Level Goal
- Prop-MCLG - Proposed Maximum Contaminant Level Goal
- WQC-Risk - Water Quality Criteria at the 10-6 risk level
- WQC-Tox - Water Quality Criteria for toxicity protection



1,650,000
1,700,000
TREMPEALEAU CO.
JACKSON CO.
R-8-W
R-7-W
R-6-W
Town of Gale
Town of North Bend
T-18-N
AU CO.
Town of Caledonia
Town of Caledonia
HOLLAND
Mud L.
Van Loon L.
Channel
Black
Fleming
Cr.
Stevens-Town
Mindoro
FARM
New Amsterdam
Holmen
ONALASKA
Onalaska
HAMILTON
Radio Sta
17-N
Midway
CAMPBELL
Mississippi
West La Crosse
La Crosse
MEDARY
Barre Mills
Bostwick
BARR
Soil Eros. Exp. Sta.
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R-8-W
GEND
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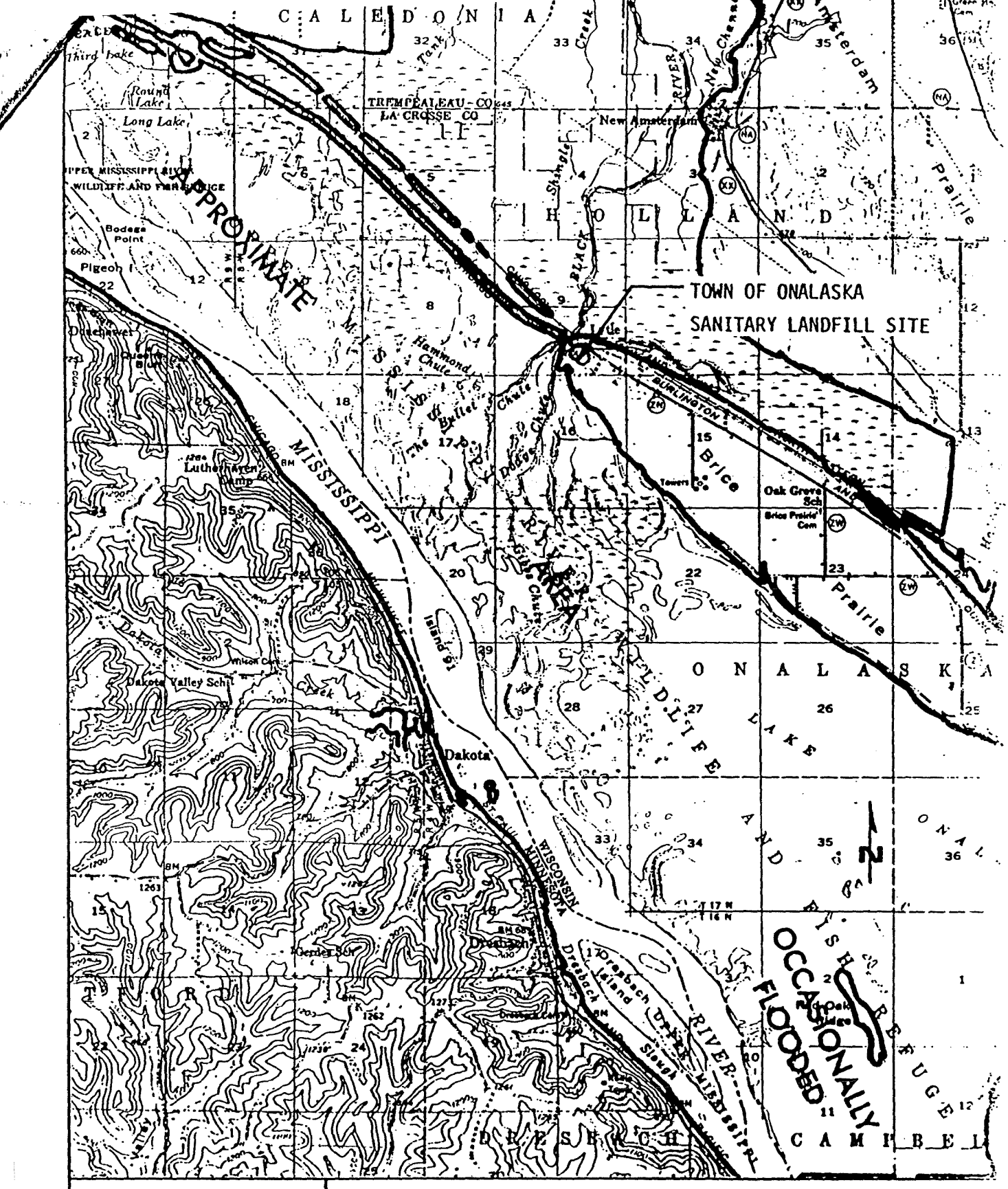
COUNTY
DISTRICTS



WARZYN ENGINEERING INC

MAP OF FLOOD-PRONE AREAS

TOWN OF ONALASKA SANITARY LANDFILL

ONALASKA LACROSSE COUNTY WISCONSIN

(Adapted From: "Map of Flood-Prone Areas" U.S. Geological Survey. La Crescent, Minn-Wis. Topographic Quad. 1969.)

DWN TAS	CHK'D RJK	APP'D [illegible]	DATE 4/17/78	C7606-A