



DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA725)

Current Human Exposures Under Control

Facility Name: Vishay Sprague* (formerly Sprague Electric Company)
Facility Address: 1754 Main Street, Sanford, ME
Facility EPA ID #: MED 077469864

* Vishay Sprague has been the most recent operator of this facility however the responsibility for the historical contamination was retained by Sprague Electric Company. The current successor to Sprague Electric is Great American Financial Resources, Inc (GAFRI) who is responsible for all activities related to this corrective action.

- 1. Has all available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been considered in this EI determination?

[X] If yes - check here and continue with #2 below.
If no - re-evaluate existing data, or
if data are not available skip to #6 and enter "IN" (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Current Human Exposures Under Control" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPR A). The "Current Human Exposures Under Control" EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

RCRA RECORDS CENTER
FACILITY Vishay Sprague
ID. NO. MED 077469864
FILE NO. R-13
OTHER # 106613

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

**Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)
Section 2**

2. Are groundwater, soil, surface water, sediments, or air **media** known or reasonably suspected to be **“contaminated”**¹ above appropriately protective risk-based “levels” (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

	<u>Yes</u>	<u>No</u>	<u>?</u>	<u>Rationale / Key Contaminants</u>
Groundwater	<u>X</u>	___	___	Plume area identified, contaminants listed below: _____
Air (indoors) ²	___	<u>X</u>	___	No structures located in the area of the Plume. _____
Surface Soil (e.g., <2 ft)	___	<u>X</u>	___	Known surface contamination has been Remediated. _____
Surface Water	___	<u>X</u>	___	None detected. _
Sediment	___	<u>X</u>	___	None detected. _
Subsurf. Soil (e.g., >2 ft)	<u>X</u>	___	___	Contaminants present in deep (> 10 feet) soils directly associated with the groundwater plume.
Air (outdoors)	___	<u>X</u>	___	Outdoor releases would not be expected at this site. _____

_____ If no (for all media) - skip to #6, and enter “YE,” status code after providing or citing appropriate “levels,” and referencing sufficient supporting documentation demonstrating that these “levels” are not exceeded.

X If yes (for any media) - continue after identifying key contaminants in each “contaminated” medium, citing appropriate “levels” (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation.

_____ If unknown (for any media) - skip to #6 and enter “IN” status code.

Footnotes:

¹ “Contamination” and “contaminated” describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based “levels” (for the media, that identify risks within the acceptable risk range).

² Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

Rationale and Reference(s): (continued next page)

Rationale and Reference(s): _____

Relevant Documents:

**Administrative Consent Agreement and Enforcement Order, with
Maine Board of Environmental Protection, and
Sprague Electric Company, Sanford, Maine
Dated: March 15, 1991**

**Sevee & Maher Engineers, Inc. Report, August 2, 2007
Subject: Environmental Monitoring Report:
First of Three Rounds - May 2007
Former Sprague Electric Co. Site, Sanford, Maine**

**Sevee & Maher Engineers, Inc. Report, April 20, 2005
Subject: CAH Plume Delineation Report:
Former Sprague Electric Co. Site, Sanford, Maine**

**MACTEC Engineering and Consulting, Report, September 22, 2005
Subject: Hazardous Waste Generator Closure Certification
Vishay Sprague Manufacturing Facility, Sanford, ME**

Summary:

As directed by the Administrative Consent Agreement and Enforcement Order, historic remediation activities at this site have included removal of two industrial waste water lagoons and removal of a leaking petroleum UST along with a nearby subsurface structure that was believed to have been a drywell. Subsequent groundwater investigations ultimately identified two similarly impacted zones or plumes referred to as the Eastern and Western zones. Each zone also has upper and lower aquifers with very significant differences in contamination levels. In both zones, the upper aquifers had initially low contaminant levels that after a number of years of monitoring have fallen to either non-detect or to below a level of concern. The lower aquifer remains contaminated primarily with chlorinated hydrocarbons.

Numerous attempts were made to identify additional source areas including additional soil borings, sub-slab investigations in the buildings and investigation of the building floor drains. No additional source areas were identified and no evidence was found to suggest that either plume originated from beneath the building. While both plumes appear to originate close to the building, they extend down gradient away from the building and do not appear to extend under the slab at all.

Most of the groundwater monitoring wells on this site have been monitored for a number of years. A number of contaminants identified earlier are no longer being found at detectable levels or levels of concern. The following table identifies contaminants that may be present at levels of concern at this time.

Contaminants of concern presently identified in groundwater:

Contaminant	GW Standard (mg/L) MCL/MEG	Highest * Concentration in GW (mg/L)	Location
Vinyl Chloride	2/.02	1800	MW-104-BR
1,1-Dichloroethene	7/.06	33	MW-204-B
1,1-Dichloroethane	-/70	26	MW-702-B
Cis-1,2-Dichloroethene	70/70	5400	MW-204-B
Trans-1,2-Dichloroethene	100/140	55	MW-104-BR
Trichloroethene	5/32	2600	MW-204-B
Arsenic	10/-	318	MW-203-B

* Highest concentration found in sampling trimester ending May 2007

Attachments:

- Figure 1-1:** Site locator map
- Figure 4-6:** Approximate plume location and concentration of CAHs in lower aquifer.
- Figure 6-1:** Shows locations of property lines and abutting properties impacted. Also shows approximate limits of the plumes and sampling locations.

**Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)
Section 3**

3. Are there **complete pathways** between “contamination” and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table

Potential Human Receptors (Under Current Conditions)

“Contaminated” Media	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food ³
Groundwater	_N_	_N_	_N_	_N_			_N_
Air (indoors)	--	--	--				
Soil (surface, e.g., <2 ft)	--	--	--	--	--	--	--
Surface Water	--	--			--	--	--
Sediment	--	--			--	--	--
Soil (subsurface e.g., >2 ft)				_N_			_N_
Air (outdoors)	--	--	--	--	--		

Instructions for Summary Exposure Pathway Evaluation Table:

1. Strike-out specific Media including Human Receptors’ spaces for Media which are not “contaminated”) as identified in #2 above.
2. enter “yes” or “no” for potential “completeness” under each “Contaminated” Media -- Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations some potential “Contaminated” Media - Human Receptor combinations (Pathways) do not have check spaces (“_”). While these

combinations may not be probable in most situations they may be possible in some settings and should be added as necessary.

- If no (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter "YE" status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways).
- If yes (pathways are complete for any "Contaminated" Media - Human Receptor combination) - continue after providing supporting explanation.
- If unknown (for any "Contaminated" Media - Human Receptor combination) - skip to #6 and enter "IN" status code

Rationale:

The contaminated media (groundwater and associated subsurface soils at depths greater than 10 feet) lie beneath portions of the facility which contain no buildings or structures and which are utilized primarily as driveways, parking lots and open space at this time. As indicated on Figures 4-6 and 6-1, the limits of the plumes extend to three additional properties. These properties include that of Ridgewood ME Hydro Partners, LP and Sanford-Springvale Mousam Way Land Trust, both open land with no or limited development potential. The third property is the former Darlene Ford residential property. The impacted portion of this residential property lies at the back of the lot in a wooded section away from the buildings. This residence is serviced with public water, as is the former manufacturing facility. Based on this information, there is no expectation of human exposure through indoor air (vapor intrusion), outdoor air, surface soil, surface water or groundwater pathways.

Until such time that all soil and groundwater contaminant levels are reduced to the appropriate standards Environmental Covenants will be placed on all affected parcels to provide for control of subsurface soil disturbance and groundwater extraction. Covenants have been completed on the Vishay Sprague site and the Ridgewood ME Hydro Partners, LP property. Negotiations are pending for Covenants on the Sanford-Springvale Mousam Way Land Trust and the former Darlene Ford properties. The Environmental Covenant for the Vishay Sprague property includes an agreement with the Sanford Sewer District who has an easement for sewer lines within the current plume area.

As indicated on Figures 4-6 and 6-1, the plumes apparently terminate at the Mousam river. Four groundwater seeps located in the wetland adjacent to the river (see Fig. 6-1) have been sampled twice annually for the last three years and no CAH compounds have been detected. Additionally, one surface water sample has been collected for analysis with each round of groundwater sampling that has been done for the last 9 years. In that period the only quantifiable detection of site related CAHs was one 2ug/L detection of cis-1,2-DCE in 2004. These data suggest no discernable impact to surface water or sediments. Any concerns that the contaminated groundwater plume may actually flow beneath the river and impact an area on the further shore should be negated by the presence of large wastewater treatment lagoons (see fig. 1-1) directly across.

One additional fact to be considered is the presence of several municipal water supply wells located about one mile from this facility. Not only are these wells separated by distance, but the direction of the groundwater plume from this facility is not toward these wells rather it is at a right angle to that direction. Based on current use, there would be no completed pathway for human exposure.

Footnotes:

³ Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.)

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)
Section 4

4 Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **“significant”**⁴ (i.e., potentially “unacceptable” because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable “levels” (used to identify the “contamination”); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable “levels”) could result in greater than acceptable risks)?

N/A

_____ If no (exposures can not be reasonably expected to be significant (i.e., potentially “unacceptable”) for any complete exposure pathway) - skip to #6 and enter “YE” status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to “contamination” (identified in #3) are not expected to be “significant.”

N/A

_____ If yes (exposures could be reasonably expected to be “significant” (i.e., potentially “unacceptable”) for any complete exposure pathway) - continue after providing a description (of each potentially “unacceptable” exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to “contamination” (identified in #3) are not expected to be “significant.”

N/A

_____ If unknown (for any complete pathway) - skip to #6 and enter “IN” status code

Rationale and Reference(s): _____ N/A _____

Footnotes:

⁴ If there is any question on whether the identified exposures are “significant” (i.e., potentially “unacceptable”) consult a human health Risk Assessment specialist with appropriate education, training and experience.

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)
Section 5

5
N/A

Can the "significant" exposures (identified in #4) be shown to be within acceptable limits?

_____ If yes (all "significant" exposures have been shown to be within acceptable limits) - continue and enter "YE" after summarizing and referencing documentation justifying why all "significant" exposures to "contamination" are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).

N/A

_____ If no (there are current exposures that can be reasonably expected to be "unacceptable")- continue and enter "NO" status code after providing a description of each potentially "unacceptable" exposure.

N/A

_____ If unknown (for any potentially "unacceptable" exposure) - continue and enter "IN" status code

Rationale and Reference(s): _____ N/A _____

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)
Section 6

6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

XX YE - Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at the Vishay Sprague (Formerly Sprague Electric Company) facility, EPA ID # MED077469864, located on Main Street in Sanford, Maine under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

 NO - "Current Human Exposures" are NOT "Under Control."

 IN - More information is needed to make a determination.

Completed by (signature) Edward J. Vigneault
(print) Edward J. Vigneault
(title) Project Manager

Date 9/25/07

Supervisor (signature) Stacy A. Ladner
(print) Stacy A. Ladner
(title) Unit Manager
(EPA Region or State) Maine DEP

Date 9/25/07

Review by David Lim
David Lim 1/28/08
EPA

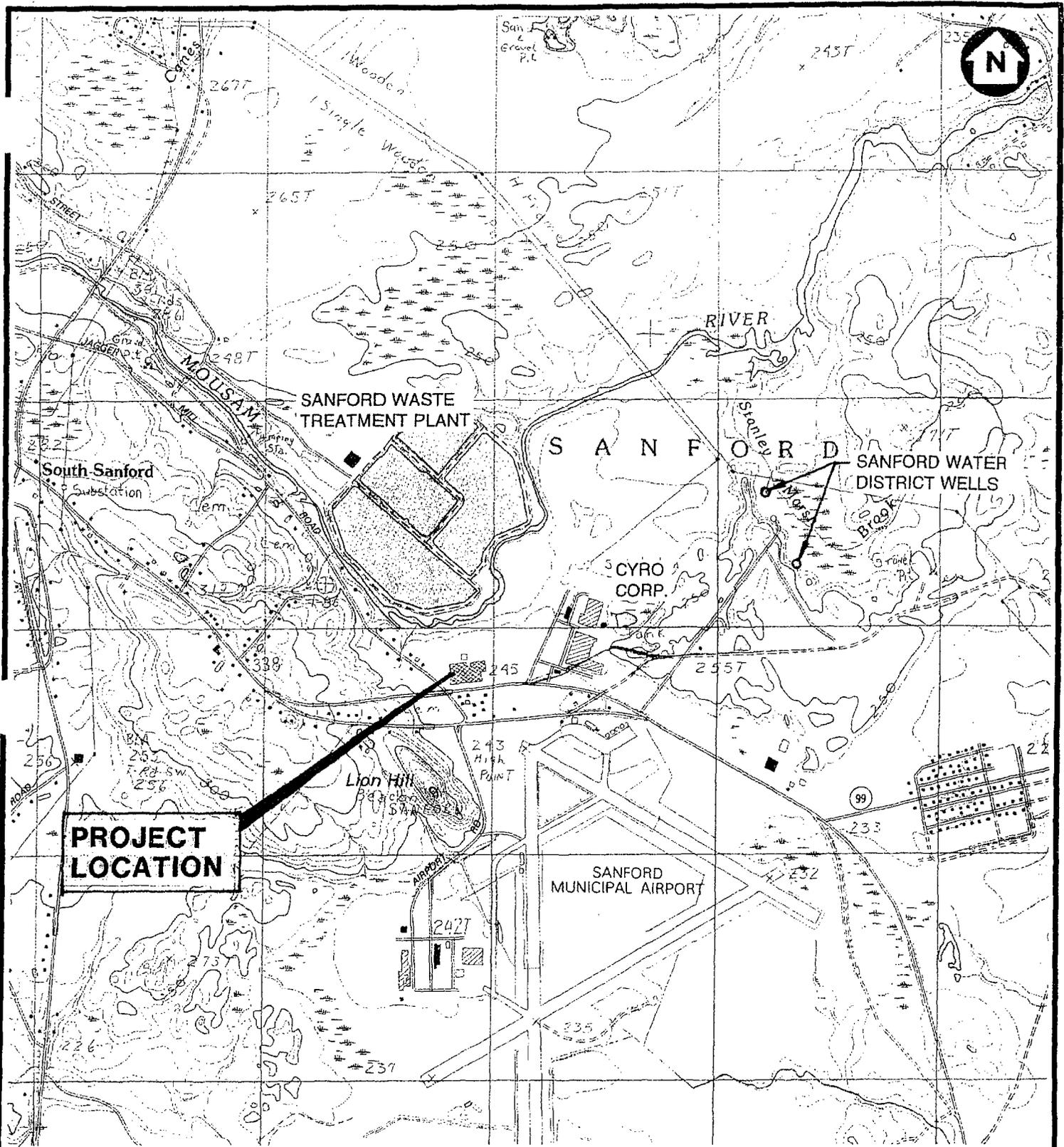
Locations where References may be found:

Maine Department of Environmental Protection
BRWM File Room, 28 Tyson Drive
17 State House Station
Augusta, ME 04333-0017
Phone (file room) 207-287-7843

Contact telephone and e-mail numbers

(name) **Edward J. Vigneault**
(phone #) **207-287-7827**
(e-mail) **edward.j.vigneault@maine.gov**

FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.

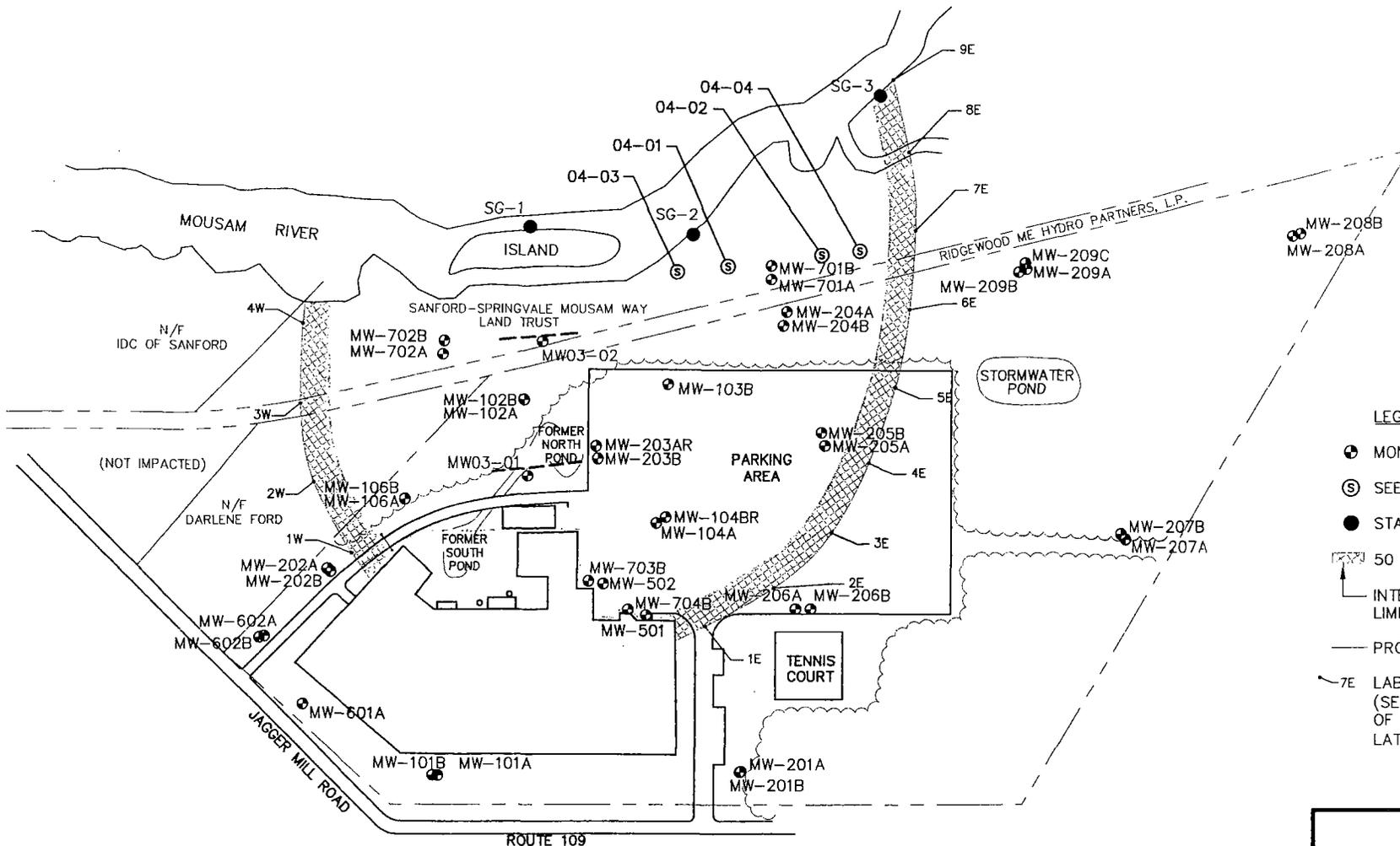


BASE MAP ADAPTED FROM 7.5 MIN
 USGS TOPOGRAPHIC QUADRANGLE
 ALFRED, MAINE-1983

FIGURE 1-1
 VISHAY SITE PROJECT SETTING
 SPRAGUE FACILITY
 SANFORD, MAINE



DWG: SITELOC LMN: CTB: HPSTD REV: 4/19/05



- LEGEND**
- ⊕ MONITORING WELL
 - Ⓢ SEEP
 - STAFF GAUGE
 - ▨ 50 FT BUFFER ZONE
 - - - INTERPRETIVE CAH PLUME LIMIT
 - PROPERTY BOUNDARY
 - 7E LABELED SURVEY PIN (SEE APPENDIX FOR TABLE OF PIN LOCATIONS BY LATITUDE & LONGITUDE)

NOTE:
 NORTHERN BUILDING CORNERS AND MONITORING POINTS WITHIN CAH PLUME AREA RESURVEYED IN SEPTEMBER 2004 BY BOUNDARY ENGINEERING OF BUXTON, MAINE. VISHAY SPRAGUE PROPERTY BOUNDARIES, LATERALLY DISTANT WELLS OUTSIDE CAH PLUME LIMITS (BOTH WEST AND EAST) AND TENNIS COURT AREA FEATURES RELOCATED BY MAINE DEP GPS SURVEY.



DWC: SITE LMN: ABUT CTB: ABUT REV: 4/15/05

FIGURE 6-1
 ABUTTING PROPERTIES,
 CAH PLUME DELINEATION
 SPRAGUE FACILITY
 SANFORD, MAINE

