

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

April 28, 1976

L. B. Higginbotham, Chief, Safety and Environmental Programs Branch
Office of Inspection and Enforcement, Headquarters

NORTHERN STATES POWER COMPANY (MONTICELLO)
LICENSE NO. DPR-22 (DOCKET NO. 50-263)
COMMENTS ON THE MONTICELLO LICENSE AMENDMENTS - RADIOLOGICAL
ENVIRONMENTAL MONITORING PROGRAM

We have reviewed the Monticello Nuclear Generating Plant license amendments, dated October 15, 1975, and March 1, 1976, in which the licensee is proposing changes to the Radiological Environmental Monitoring Program. We have examined the proposed program both against the content of the existing program and against the guidance of the proposed Regulatory Guide, "Environmental Technical Specifications for Nuclear Power Plants."

First, confusion exists as to what the licensee is proposing. The content of Table 4.8.1 in the March 1, 1976 proposed license amendment is the same as the existing TS Change 15 dated January 15, 1975; only the pagination is changed. However, the content of the proposed October 15, 1975 license amendment is different from that of the existing Change 15.

In reference to the content change of the proposed October 15, 1975 license amendment, it appears that the proposed changes de-emphasize gross beta analyses. In addition, some sampling such as lake water, precipitation, and lake bottom sediment which was probably not serving as an effective indicator of potential plant radiological environmental effects has been deleted. Also film badges for beta-gamma dose have been deleted. The TLD's should serve the same purpose. As recommended by Reg Guide 4.8, meat and poultry as sampling media, were not included in the proposed license amendment.

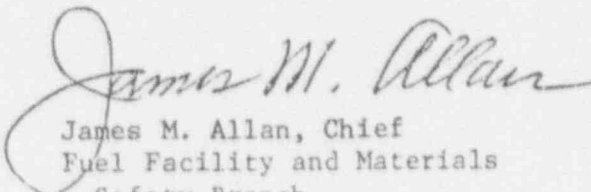
Particular attention should be addressed to the virtually complete failure of the proposed program to include radiostrontium analyses in various media. Furthermore, no radioiodine analyses of drinking water is proposed as recommended by Reg Guide 4.8.

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In terms of the collection site, improvements have been made in specifying sampling locations, particularly at the points of highest X/Q. However, no sampling of milk from the nearest existing milk cow (1.5 miles NW of the plant) (FES. p. V-30) is being done by the licensee or included in the proposed license amendment. Furthermore, no sampling is done of river sediment and indicator organisms in the immediate downstream area of the discharge point.

In addition, several collection frequency specifications include unnecessary exemptions to sample collections. For example, it seems unlikely that specified samples will be unavailable for an entire semiannual period; yet the licensee proposes to collect semiannual bottom and shoreline sediment, periphyton or macroinvertebrates, aquatic vegetation, and fish semiannually "when available." Collection frequency flexibility seems more applicable in situations for which the collection period is small or rigidly specified such that it may be likely that there could be no sample available for the duration of a period.

A number of individual instances of minor inconsistencies between the proposed program content and the recommended content in Reg Guide 4.8 has been identified as pointed out in the enclosed attachment of Table 4.8.1.


James M. Allan, Chief
Fuel Facility and Materials
Safety Branch

Enclosure:
As stated

DIFFERENCES OF THIS
PROPOSED SPECIFICATION
FROM H.S. ARE INDICATED
BY BRACKETS []

(Oct. 15, 1975 PROPOSED CHANGE)

TABLE 4.8.1
(Page 1 of 4)

MONTICELLO NUCLEAR GENERATING PLANT
RADIATION ENVIRONMENTAL MONITORING PROGRAM
SAMPLE COLLECTION AND ANALYSIS

Type of Sample	Type of Analysis	Collection Site	Collection Frequency
River Water	CS (M) [89/90Sr (Q)] 3H (Q)	1 Sample upstream within 1000 ft of intake canal 1 Sample downstream within 1000 ft of discharge canal [IN IMMEDIATE AREA OF DISCHARGE]	Monthly composite of weekly samples (water & ice conditions permitting) Quarterly composite of monthly composite
Drinking Water	CS, CS (M) [RAD. MONITORING SEMI-MONTHLY] [89/90Sr (Q)] 3H (Q)	1 Sample from the City of Minneapolis Water Supply	Monthly composite of weekly samples Quarterly composite of monthly composite
Well Water	CS, 3H	3 Samples from wells within 5 miles of plant site including the City of Monticello well 1 Sample from a well greater than 10 miles away	Quarterly
River Bottom Sediment Shoreline sediment	CS [90Sr - SEMI-ANNUAL]	1 Sample upstream of plant [1 Sample ^{IMMEDIATE} downstream of plant] 1 Sample from the shoreline at a recreational area [1 Sample at DOWNSTREAM IMPEDIMENT]	Semi-annually (when available) ?
Periphyton or Macroinvertebrates	CS, 89,90Sr	1 Sample upstream of plant [1 Sample ^{IMMEDIATE} downstream of plant] [1 Sample at DOWNSTREAM IMPEDIMENT]	Semi-annually (when available) ?

TABLE 4.6.1
(Page 2 of 4)

Type of Sample	Type of Analysis	Collection Site	Collection Frequency
Aquatic Vegetation	GS	1 Sample upstream of plant [1 Sample ^{IMMEDIATE} downstream of plant 1 SAMPLE AT DOWNSTREAM THALWATER]	Semi-annually (when available) ?
Clams	GS	1 Sample upstream of plant 1 Sample downstream of plant	Semi-annually (when available) ?
Fish (1 sample each of of two game species) EACH IMPORTANT COMMERCIAL AND RECREATIONAL SPECIES	[GS ON EDIBLE PORTIONS]	2 Samples upstream of plant [2 Samples downstream of plant in IMMEDIATE DISCHARGE AREA 1 SAMPLE IN AREA NOT INFLUENCED BY PLANT DISCHARGE]	Semi-annually (RAIN SEASON) (when available, water & ice conditions permit- ting)
Milk	^{131}I , ^{137}Cs ,* $^{89,90}\text{Sr}$ *	1 Sample at the offsite dairy farm having the highest X/Q 3 Samples from dairy farms calc- ulated to have doses from ^{131}I > 1 mrem./yr 1 Sample from 10-20 mile location [LEAST PREVALENT WIND DIRECTION]	Monthly [1-131 WEEKLY OR SEMI-MONTHLY WHEN ANIMALS ARE ON PASTURE]
Topsoil	GS [^{90}Sr]	From the 7 air sampling locations, and from 5 fields in the vicinity of the plant, including at least 2 fields irrigated with river water downstream of the plant.	Once every 3 years
Natural Vegetation	GS, ^{131}I	1 Sample from field having highest X/Q (same as for milk) 1 Sample from a field northwest of the plant (within 2 miles) 1 Sample from 10-20 mile location (Same as for milk) [AT LEAST PREVALENT WIND DIRECTION]	Semi-annually

*Performed only on X/Q and Control Samples

[*PERFORMED ON ALL SAMPLES]

TABLE 4.8.1
(Page 3 of 4)

<u>Type of Sample</u>	<u>Type of Analysis</u>	<u>Collection Site</u>	<u>Collection Frequency</u>
Small Mammal	GS (Flesh & liver)	1 Sample within 1 mile of site 1 Sample 10-20 miles from the site	Semi-annually
Cultivated Crops [FRUITS + VEGETABLES]			
Leafy Green Vegetables	131I	1 Sample from nearest garden AND IN FARMS 1 Sample from 10-20 mile location [IN THE LEAST PREVALENT WIND DIRECTION] [SAMPLE FROM POINT HAVING HIGHEST X/Q 1 SAMPLE FROM AREA DESIGNATED BY EFFLUENT #10]	Annually (at harvest, [if available])?
Corn	GS	1 Sample from highest X/Q farm 1 Sample from 10-20 mile location [IN THE LEAST PREVALENT WIND DIRECTION]	Annually (at harvest, [if available])?
Potatoes	GS	1 Sample from field irrigated with river water 1 Sample from 10-20 mile location [IN THE LEAST PREVALENT WIND DIRECTION]	Annually (at harvest, [if available])?
Air (Particulates)	GB, GS(M) [89,90 Sr & mp. (G)]	3 locations in different sectors having the highest calculated ground level concentrations 1 location near residence having highest X/Q value 1 location near closest community 2 locations within 10-20 miles, IN THE [LEAST PREVALENT WIND DIRECTION]	Weekly

TABLE 4.8.1
(Page 4 of 4)

<u>Type of Samples</u>	<u>Type of Analysis</u>	<u>Collection Site</u>	<u>Collection Frequency</u>
Air (Radioiodine)	^{131}I	1 location near residence having highest X/Q value 1 location near closest community 1 location within 10-20 miles ^{UPWIND} [2 locations in DIFF SECTORS HAVING HIGHEST \bar{X}/Q]	Weekly
Air (TLD)	Gamma dose	2 6 sineters at each air particulate sampling location [2 additional control locations 3 additional sectors having HIGHEST \bar{X}/Q]	Quarterly

Coding System
GB - Gross beta
GS - Gamma scan
M - Monthly
Q - Quarterly

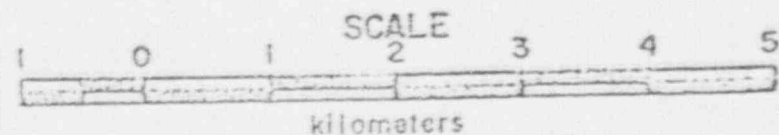
[MEAT + POULTRY]

[GS ON EDIBLE
PORTIONS]

[1 OR MORE SAMPLES FROM ANIMALS LIVING
DOWNWIND OR DRINKING DOWNSTREAM WATER] [SEMIANNUAL]
1 SAMPLE AS ABOVE @ 710 MI UPWIND
~~1. Sample~~

Figure 4.3.1

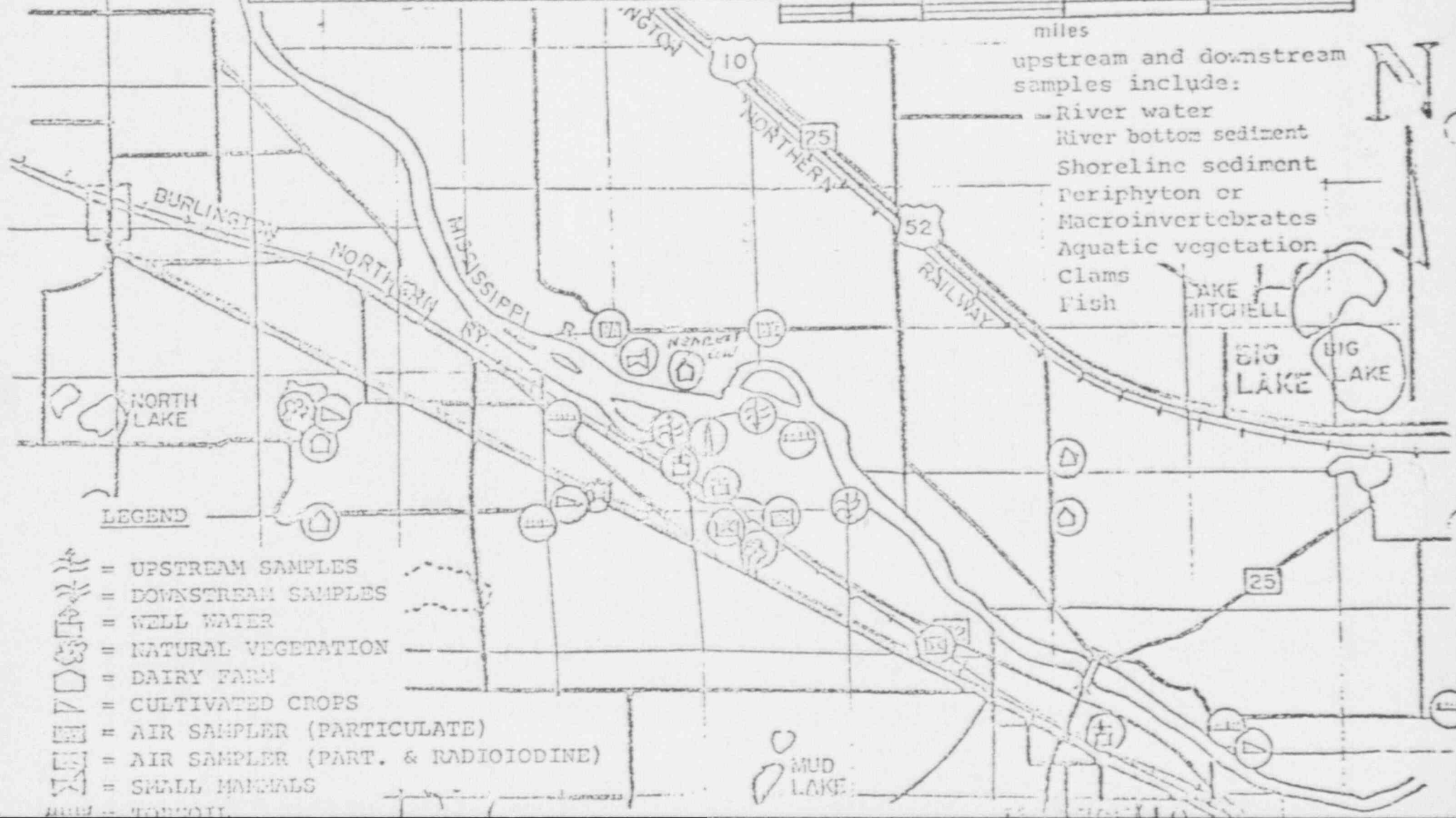
MONTICELLO NUCLEAR GENERATING PLANT
RADIATION ENVIRONMENTAL MONITORING PROGRAM



upstream and downstream
samples include:

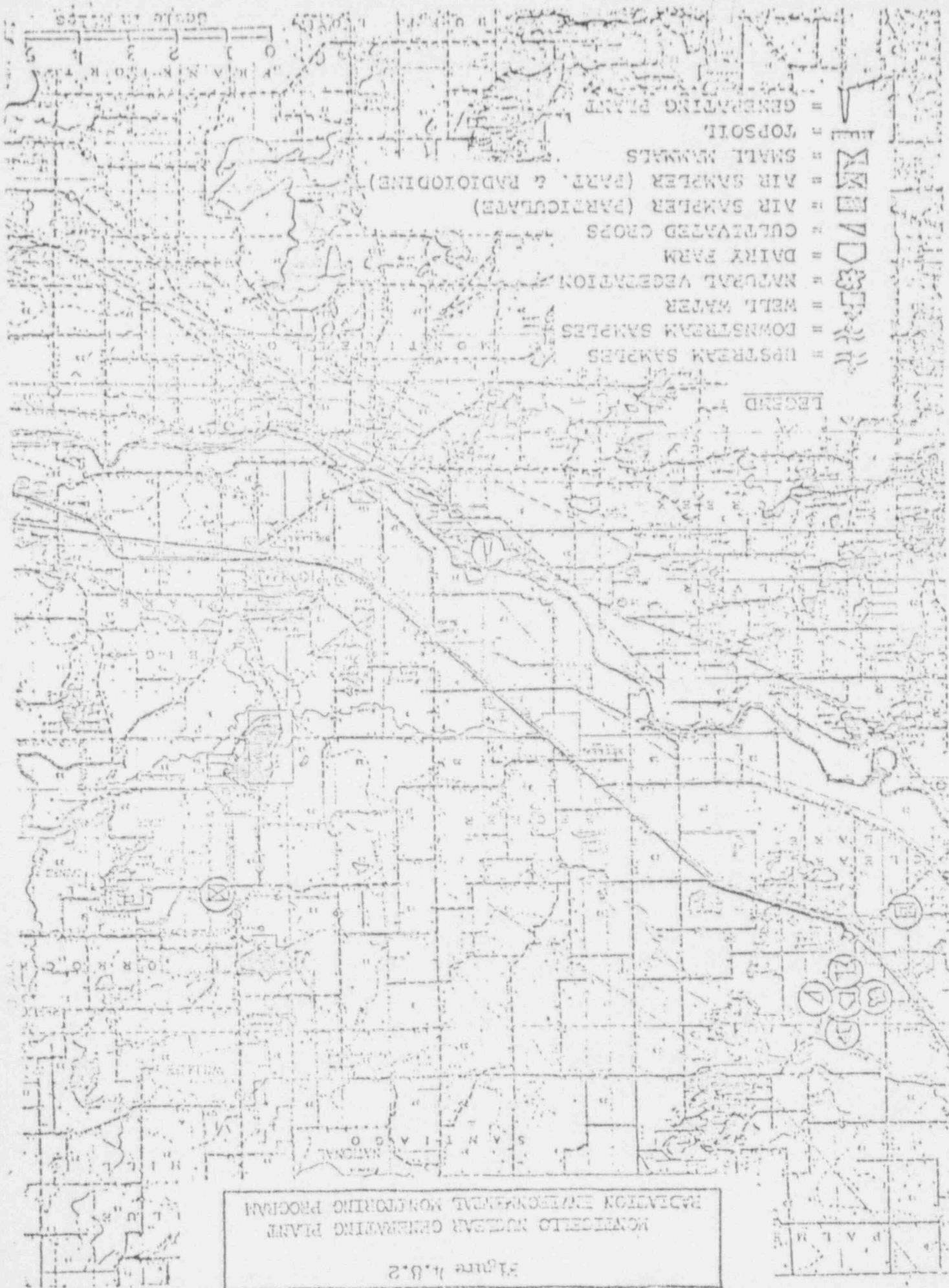
- River water
- River bottom sediment
- Shoreline sediment
- Periphyton or
- Macroinvertebrates
- Aquatic vegetation
- Clams
- Fish

N



LEGEND

- = UPSTREAM SAMPLES
- = DOWNSTREAM SAMPLES
- = WELL WATER
- = NATURAL VEGETATION
- = DAIRY FARM
- = CULTIVATED CROPS
- = AIR SAMPLER (PARTICULATE)
- = AIR SAMPLER (PART. & RADIOIODINE)
- = SMALL MAMMALS
- = TROUT



Bases Continued:

The frequency for monitoring or sampling has been established so that if the maximum amount of gross radioactivity is exceeded, action can be taken to reduce the radioactivity to a level below the specified limit.

F. Radiation Environmental Monitoring Program

The types of samples, the number and distribution of collection sites, and the types of analysis specified will provide data, which compared with preoperational background data, will verify the effectiveness of plant effluent control and indicate any measurable changes in environmental radioactivity due to plant operation.