

ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER _____

GINNA STATION
UNIT #1
COMPLETED

DATE :-

TIME :-

PROCEDURE NO. SC-452

REV. NO. 1

SAMPLING SNOW, GRASS, SOIL AND VEGETATION

TECHNICAL REVIEW

PORC REVIEW DATE 7-13-82

J. Bodine
QC REVIEW

A J. Moon
PLANT SUPERINTENDENT

7-16-82
EFFECTIVE DATE

QA X NON-QA _____ CATEGORY 1.0

REVIEWED BY: _____

THIS PROCEDURE CONTAINS 5 PAGES



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SC-452SAMPLING SNOW, GRASS, SOIL AND VEGETATION1.0 PURPOSE:

- 1.1 To define criteria for taking samples from areas surrounding the plant to determine possible surface contamination after an uncontrolled release.

2.0 REFERENCES:

- 2.1 SC-450

3.0 PRINCIPLE:

- 3.1 The determination of radioactive contamination in the environment surrounding the Ginna Plant requires specific criteria for sampling to ensure that meaningful data is obtained.

4.0 PREREQUISITES AND NEEDED EQUIPMENT:

- 4.1 Clean plastic bags for holding samples.
- 4.2 Tools for obtaining specific types of samples, as may be necessary.
- 4.3 Survey meter RM-14 with HP190 probe or μ R meter.

5.0 PRECAUTIONS AND LIMIT VALUES:

- 5.1 Care must be taken not to contaminate the initial sample while it is being taken.
- 5.2 Care must be taken not to cross-contaminate samples in handling or counting.
- 5.3 Radiological precautions should be taken while sampling potentially contaminated areas to prevent personal contamination.

6.0 INSTRUCTIONS:

- 6.1 Obtain clean plastic bags to be used to collect samples.
- 6.2 Obtain tools necessary to obtain specific types of samples.

6.3 Taking samples of snow.

NOTE: Snow samples are dependent upon several weather related variables:
a) Rate of snowfall at and since time of release; b) Air temperatures since snowfall of interest occurred; c) Wind speed and direction; d) Sunshine, rain or other weather conditions occurring after snowfall of interest.

- 6.3.1 Select the area to be sampled from the general location requested that has not been subjected to non-meteorological disturbances (plowing, snowmobiles, pedestrians, etc.)

NOTE: Snow falling at time of interest or snow on ground at time of deposition may have drifted since the time of interest. Melting and freezing and/or rain may mean the snow deposition is fixed in an ice layer and not affected by winds. These possibilities must be considered and existing weather conditions used to determine area to be sampled.

- 6.3.2 Take radiation reading with survey meter(s) one centimeter and one meter above surface of snow, record on Attachment I.

- 6.3.3 Measure the selected area to be sampled in units of square feet.

- 6.3.4 Take up snow to depth sufficient to collect snow of interest.

NOTE: If a crust layer may have formed on an earlier snowfall, collect snow from surface to this crust. If snow of interest may be below a crust layer formed later, sweep loose snow away to this crust layer and then sample the crust layer and loose snow to next crust layer.

NOTE: Sample volume to give meaningful data should exceed 3 liters of melted snow. Loose snow volume is 4 times its liquid volume. Icy snow is approximately twice its liquid volume. The snow can be packed in the collection bag.

- 6.3.5 Estimate depth of snow collected.

- 6.3.6 Securely close sample bag. It is recommended that all samples be doubly bagged to prevent leakage as snow melts.

- 6.3.7 Remeasure radiation levels at one centimeter and one meter. Record on Attachment I.

- 6.3.8 Record the data requested on Attachment I: location requested; specific area selected; area sampled in sq. ft.; depth sampled; direction and approximate feet from permanent reference object; weather conditions; time of sample; radiation readings at one centimeter and one meter before and after sampling. (Label bags clearly identifying sample.)

- 6.3.9 Return sample bag for analysis to environmental trailer, Survey Center Manager or other specified location.

- 6.4 Radiation measurements of small selected land areas for possible contamination.
 - 6.4.1 Restrict passage through the area when possible by cordoning off with ropes.
 - 6.4.2 Establish a grid system of reasonable size squares in area to be surveyed: i.e. 20 ft. squares for low contamination; 10 ft. squares for moderate contamination; 5 ft. squares for heavy contamination.
 - 6.4.3 Slowly walk along centerline of grid squares holding survey instrument 1 meter above ground or other authorized comfortable height. Note readings of instrument for deviations from background measurements.
 - 6.4.4 Record reading at center point of each square.
 - 6.4.5 After finishing center point measurements for all squares, return to locations deviating from background measurements and by surveying smaller areas determine if deviation is for general area contamination or locations of hot spots of contamination.
 - 6.4.6 Prepare a map of area surveyed using recorded readings and approximate areas of contamination.
- 6.5 Taking samples at locations identified for environmental sampling.
 - 6.5.1 Survey 1 cm above the surface to determine maximum activity in general area of interest.
 - 6.5.2 Select specific area to be sampled determined by size of sample necessary.
 - 6.5.3 Grassy area. Measure selected sampling area in units of square feet.
 - 6.5.3.1 Take radiation readings 1 cm and 1 meter above the surface of area to be sampled.
 - 6.5.3.2 Clip grass in sample area as close to the roots as possible without including dirt in the sample. Grass sample should fill approximately a volume of 1 gal. if possible.

NOTE: Do not pull up clumps of grass and dirt and submit as sample. This sample would be meaningless for determination of contamination.
 - 6.5.3.3 Collect top 1/2 in. of soil from area in which grass was clipped as a second sample. Soil area to obtain equivalent volume as grass will be less than clipped for grass sample.

- 6.5.3.4 Remeasure radiation levels at 1 cm and 1 meter above surface.
- 6.5.3.5 Record on Attachment I the location of sample, area sampled in sq. ft., depth of soil sampled, location on grid or number of feet and direction from permanent reference object, time of sample and radiation readings before and after sampling.
- 6.5.4 Non-grassy areas. Measure selected area in square feet.
 - 6.5.4.1 Measure radiation levels at 1 cm and 1 meter above surface.
 - 6.5.4.2 If leaves and/or other debris, other than sticks, are in the selected area, they should be collected as a separate sample.
 - 6.5.4.3 Remeasure radiation levels if leaves have been collected for sample.
 - 6.5.4.4 Collect top 1/2 in. of soil from area selected if level. Collect small plugs of soil if roughly plowed field. Plugs can cover larger area but give approximate sq. ft. area.
 - 6.5.4.5 Remeasure radiation levels at 1 cm and 1 meter.
 - 6.5.4.6 Record on Attachment I the location of sample, depth sampled, location on grid or number of feet and direction from permanent reference object, time of sample and radiation readings before and after sampling.
 - 6.5.4.7 Label sample bag clearly, identifying sample.
- 6.6 Sampling Vegetation.
 - 6.6.1 Choose vegetation to be sampled based on deposition possibilities and availability for sufficient sample size.

NOTE: Tree leaves should be sampled from top most part of tree. Deposition is unlikely on leafy areas under taller trees or bushes. Ground covers such as burdock, lettuce or flowers should be selected from open areas. Large leafy vegetation is better than small. If rain has occurred since the release, deposited contamination may have been washed off.
 - 6.6.2 Take as large a sample as possible considering that it will be compressed into a 3.5 liter marinelli beaker.

NOTE: Consider that edible vegetation will be prepared as normally used for eating, prior to counting.
 - 6.6.3 Record on Attachment I the location of sample, type of sample, time of sample and other data necessary for full descriptive purposes.

ATTACHMENT I

Type of Sample _____

Date: _____ Time: _____ Person Taking Sample: _____

Location: _____

DRAW MAP

Reference Object: _____

Direction: _____

Distance: _____ f.

_____ f.

Area _____ sq. ft..

Depth _____ inches

Before Sampling:

Radiation Reading @ 1cm _____

@ 1 meter _____

After Sampling:

Radiation Reading @ 1cm _____

@ 1 meter _____

Weather Conditions: _____

Other Comments: