NSP

Northern States Power Company

Monticello Nuclear Generating Plant
2807 West Co. Rd. 75
Monticello, Minnesota 55362-9637

July 18, 2000

10 CFR 50, Appendix E
Section V

US Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

MONTICELLO NUCLEAR GENERATING PLANT
Docket No. 50-263 License No. DPR-22

Emergency Plan Implementing Procedures

Furnished with this letter are revisions to the Monticello Nuclear Generating Plant Emergency Plan Implementing Procedures. The following issues are new or revised:

Procedure No.	**Procedure Title**	**Procedure Rev.**
A.2-414	Large Volume Liquid Sample and/or Dissolved Gas	19

Please post changes in your copy of the Monticello Nuclear Generating Plant Emergency Plan Implementing Procedures. Superseded procedures should be destroyed.

This letter contains no new NRC commitments, nor does it modify any prior commitments.

Please contact Marcus H. Voth, Project Manager - Licensing at (763) 271-5116 if you require further information.

M H Voth

Marcus H. Voth
Project Manager - Licensing
Nuclear Energy Engineering Dept.

c: Regional Administrator - III, NRC (w/ two copies of enclosure)
NRR Project Manager, NRC (w/o enclosure)
Sr Resident Inspector, NRC (w/o enclosure, EPIP dist. by Monticello Document Control)
Minnesota Dept. of Commerce (w/o enclosure)
T. LaPlant (w/o enclosure)
G. Holthaus (w/o enclosure)
Document Control (w/o enclosure)
File (w/o enclosure)

J:\LICENSE\NRC Misc Correspondence\EPIP dist.doc

A045

Northern States Power Company
Monticello Nuclear Generating Plant
Document Control Distribution System

17-Jul-2000
Page 1

Document Distribution Manifest
Controlled Documents - Current

Name: US NRC
Title: ATTN: DOCUMENT CONTROL DESK
Company: MONTI LICENSING
Location: ATTN: MARC VOTH
MNGP-SAB/2ND FLOOR
11 COPIES OF USAR

Manifest Number: 2000-428
Distribution Type: I
Holder Number: 195
ID Number: YYYY09

Date Mailed: ______________

Distribution Type: OPERATIONS MANUALS

NOTE: The documents listed below are new or revised

Document Type	Document Number	Revision	Title
1060	A.2-414	19	LARGE VOLUME LIQUID SAMPLE AND/OR DISSOLVED GAS

MONTICELLO NUCLEAR GENERATING PLANT		A.2-414
TITLE:	**LARGE VOLUME LIQUID SAMPLE AND/OR DISSOLVED GAS SAMPLE OBTAINED AT POST ACCIDENT SAMPLING SYSTEM**	Revision 19
		Page 1 of 18

EMERGENCY PLAN IMPLEMENTING PROCEDURE - TABLE OF CONTENTS

SECTION **PAGE**

Prepared By:	Reviewed By:	
ALARA Coord Review By:		
OC Review Req'd: YES	OC Meeting Number: 2226	Date: 6/29/00
Approved By:		Date: 7/14/00

FOR ADMINISTRATIVE USE ONLY

3087 (DOCUMENT CHANGE, HOLD, AND COMMENT FORM) incorporated: 00-1481

Resp Supv: GTRNG	Assoc Ref: A.2	SR: N	Freq: 1 yrs
ARMS: A.2-414	Doc Type: 1060	Admin Initials:	Date: 7/17/00

1.0 PURPOSE

The purpose of this procedure is to provide instructions and precautions for collection, handling, and analysis of large volume liquid and dissolved gas samples during and following an emergency.

2.0 APPLICABILITY

2.1 The REC/CC/CSL has requested a dissolved gas analysis of RHR or jet pump liquid samples, or a large volume liquid sample for off-site analysis or on-site if coolant activity is low enough that a large volume sample can be handled without undue exposure to technicians.

2.2 Actual or potential radiological conditions are such that special methods and/or precautions are necessary in order to collect and analyze samples under conditions which may present a much greater than normal radiation hazard to individuals performing the sampling and analyses, or the normal sample points are not available.

3.0 ORGANIZATION AND RESPONSIBILITIES

3.1 The Radiological Emergency Coordinator (REC) is responsible for:

3.1.1 Overall direction of the Radiation Protection and Chemistry Group activities.

3.2 The Chemistry Section Leader (CSL) is responsible for:

3.2.1 Overall direction of PASS sampling and analysis.

3.2.2 Overall coordination of Chemistry Group activities.

3.3 The Chemistry Coordinator is responsible for:

3.3.1 Coordination of Chemistry Group activities in the Chemistry Lab.

3.3.2 Coordination of sample logging, identification and documentation.

3.4 The Radiation Protection Specialists (Chem) are responsible for:

3.4.1 Implementation of this procedure.

4.0 DISCUSSION

4.1 The Post Accident Sampling Station is located on the south side of the 951′ level of the Turbine Building. The most efficient route to the PASS is through Access Control and into the Turbine Building. Move to the 951′ level via the east stairway.

5.0 PRECAUTIONS

5.1 Exposures of sampling and analysis personnel ***SHALL*** be in accordance with A.2-401 (EMERGENCY EXPOSURE CONTROL).

5.2 Exposures to all personnel due to sampling and analysis operations should be maintained as low as is reasonably achievable. Techniques such as temporary shielding, remote handling, and sample dilution prior to analysis should be considered to reduce exposure to personnel.

5.3 When actual or potential radiation levels so warrant, high range portable survey instruments, and self-reading dosimeters should be provided to sampling and analysis personnel. Alarming dosimeters should also be considered.

5.4 Appropriate extremity dosimeters should be provided and worn when handling samples which themselves represent high level radiation sources.

5.5 Two Rad Prot Specs should be used to obtain a post-accident sample when applicable and possible.

6.0 INSTRUCTIONS

6.1 Preparation for Sampling

6.1.1 Obtain key 55 and the PASS cabinet key from the Shift Chemist key ring.

6.1.2 Initiate a Form 5790-414-01 (DISSOLVED GAS SAMPLING AND ANALYSIS CHECKLIST).

6.1.3 Obtain sample type and number from Chemistry coordinator (see FIGURE 7.7 in A.2-408 (SAMPLE COORDINATION DURING EMERGENCIES)).

6.1.4 Call the Control Room to:

A. Determine whether A or B RHR is operating.

B. Verify RBCCW is operating.

C. Advise the Control Room that jet pump flow transmitter may be affected. (Computer Point REC136 (REACTOR JET PUMP TOTAL FLOW)).

6.2 Obtaining Samples

6.2.1 IF PASS demin water tank level is below the Low Level indicator, THEN fill the tank IAW A.2-418 (POST ACCIDENT SAMPLING STATION DEMIN WATER TANK FILL PROCEDURE).

6.2.2 Open nitrogen supply as follows:

A. OPEN main cylinder valve on one nitrogen cylinder.

B. OPEN corresponding manifold valve either PAS-57-21 (N_2 GAS BOTTLE MANIFOLD SHUTOFF) or PAS-57-11 (N_2 GAS BOTTLE MANIFOLD SHUTOFF).

C. CLOSE regulator outlet isolation valve.

D. Adjust regulator to 100 psi.

E. OPEN regulator outlet Isolation valve.

6.2.3 Turn HC-730 (PASS VENTILATION) to start.

6.2.4 IF vacuum is not between 0.10″ and 0.05″, THEN adjust ventilation damper to obtain proper reading.

6.2.5 Insert PASS key into HC-600 (POWER SOURCE SELECTOR SWITCH).

6.2.6 Place HC-600 to position A.

6.2.7 Obtain 20 ml sample vial (with velcro strip), cap, and retainer ring from cabinet. Cap the vial and remove the aluminum ring from the center of the cap.

6.2.8 Label the vial with the sample number obtained in STEP 6.1.3.

6.2.9 Insert the capped vial into the sample station as follows:

A. Using a flashlight and inspection mirror, check the condition of the needles. Ensure that they are not bent.

B. Place the cylinder into the cask.

C. Engage the cable in the sample vial by gently pushing the cable in and turning clockwise.

D. Remove the cylinder cask shield plug from the cask.

E. Raise the sample vial holder and insert the capped vial.

F. Lower the sample vial into the cask using the cable.

G. Place the shim on the RIGHT SIDE of the cask.

H. Close the hydraulic valve and jack up the cask.

I. Gently roll the cask under the left side of the station.

J. Using the cable, raise the sample vial into position.

K. Maintain sample vial in elevated position and jack up the cask until lit is flush with the bottom of the station.

CAUTION

Do not allow the demin water pressure to exceed 110 psi.

6.2.10 Adjust demin water pressure regulator to 100 psi.

6.2.11 Place HC-700 to LIQD.

6.2.12 Place HC-626 (LIQUID SAMPLE SOURCE SELECTOR) to position 2 (JET PUMP) or position 4 (RHR) as required.

6.2.13 IF bottle position status light is not green,
THEN adjust the bottle holder.

6.2.14 Place HC-626 to position 1 (JET PUMP BYPASS) or position 5 (RHR BYPASS).

6.2.15 Place HC-500 (SAMPLE SOURCE SELECTOR SWITCH) to required sample position.

6.2.16 Place LIQUID RETURN SELECTOR switch to the operating RHR loop.
IF neither RHR loop is operating,
THEN place the selector switch to A.

6.2.17 IF pressure on PI-661 (LIQUID PRESSURE - PSIG) does not increase to near target system pressure within 10 minutes,
THEN cycle HC-500 between 'A' and 'B' sample points.

6.2.18 Slowly turn PCV-627 (FLOW CONTROL VALVE) clockwise to get a flow of at least 0.8 gpm for jet pump sample or at least 0.4 gpm for RHR (as indicated on FI-664 (SAMPLE RETURN FLOW)).

6.2.19 Flush for 10 minutes.

6.2.20 Record flow and flush time on Form 5790-414-01.

6.2.21 Place HC-626 to position 2 (JET PUMP) or position 4 (RHR) for the required sample.

6.2.22 Adjust PCV-627 to 0.3 +/-0.05 gpm.

6.2.23 Flush for 5 minutes.

6.2.24 Record the following on Form 5790-414-01:

A. Flow per FI-664.

B. Pressure per PI-661.

C. Temperature per TI-660.

D. Conductivity per CI-663.

E. Radiation per RI-665.

6.2.25 <u>IF</u> only a large volume liquid sample is to be taken,
<u>THEN</u> go to 6.2.31.

6.2.26 Place HC-601 (DISSOLVED GAS AND LIQUID SAMPLE) to position 1 (START P-702 AND INSERT NEEDLE).

6.2.27 <u>WHEN</u> PI-662 (DISSOLVED GAS PRES - PSIA) is stable,
<u>THEN</u> turn HC-601 to OFF.

6.2.28 Confirm PI-662's indicated pressure change is less than or equal to 0.05 psia/min.

6.2.29 <u>IF</u> PI-662 increases by more than 0.05 psia/min,
<u>THEN</u> tighten or replace the needle guide septum. Repeat 6.2.26 and 6.2.28.

6.2.30 Insert an open end 10 inch needle (without syringe) through the septum.

6.2.31 Place HC-601 to position 2 (START P-601).

6.2.32 Flush for 10 minutes.

6.2.33 Place HC-601 to position 3 (CIRC AND SEPARATE GAS) and wait for 30 seconds.

6.2.34 IF only a liquid sample is desired,
THEN go to 6.2.51.

6.2.35 Place HC-601 to position 4 (REMOVE NEEDLE) and remove the 10 inch needle.

6.2.36 AFTER PI-662 is stable,
PLACE HC-601 to position 5 (CIRC AND SEPARATE GAS).

6.2.37 When PI-662 is stable, record value as P_1 on Form 5790-414-01.

6.2.38 Place HC-601 to position 6 (COLLECT DISSOLVED GAS) and wait 5 seconds.

6.2.39 Place HC-601 to position 7 (CIRCULATE AGAIN) and wait 10 seconds.

6.2.40 Place HC-601 to position 8 (COLLECT DISSOLVED GAS AGAIN) and wait 5 seconds.

6.2.41 Repeat 6.2.39 through 6.2.40 until the change in pressure readings from PI-662 is < 0.15 psia.

6.2.42 Place HC-601 to position 9 (RELIEVE PRESSURE/TAKE GAS SAMPLE).

6.2.43 Record final pressure of PI-662 as P_2 on Form 5790-414-01.

6.2.44 Record water temperature, TI-660 as T_L on Form 5790-414-01.

6.2.45 IF only a dissolved gas calculation will be made and a dissolved gas grab sample is not required,
THEN go to 6.2.50.

CAUTION

Use appropriate radiological precautions when handling the syringe, as high dose may be present.

6.2.46 Insert 10 inch needle with syringe into gas collection chamber via needle guide.

6.2.47 Draw 2 cc's of gas and lock the syringe closed. DO NOT REMOVE SYRINGE AND NEEDLE.

6.2.48 Place HC-652 counterclockwise to LOWER PRESSURE position and hold until pressure is relieved, as indicated on PI-662.

6.2.49 Remove needle and syringe.

6.2.50 IF a large volume liquid sample is not required,
THEN go to 6.2.55.

6.2.51 Place or verify HC-601 to position 9 (RELIEVE PRESS/TAKE GAS SAMPLE).

6.2.52 Turn HC-652 counterclockwise to LOWER PRESSURE position and hold until pressure is relieved, as indicated on PI-662.

6.2.53 Place HC-601 to position 10 (TAKE LIQUID SAMPLE).

6.2.54 Press and hold in pushbutton HC-629-1 for 10 seconds.

6.2.55 Place HC-601 to OFF.

6.2.56 Inform Control Room sampling is completed.

CAUTION

Do not position body at any time directly over cask, as potentially high dose rates may exist.

6.2.57 Lower the sample into the large volume cask by pulling up on the cable. DO NOT twist the plunger.

6.2.58 Lower the cask.

6.2.59 Roll the cask out from under the station.

6.2.60 Install the shield plug in the cask.

6.2.61 Disengage the cable from the sample vial by turning the cable counterclockwise and pulling gently outward.

6.2.62 Place or verify HC-601 to OFF.

6.2.63 Place HC-500 to OFF.

6.2.64 Place HC-628-1 (FLUSH SYSTEM) to position 2 (START FLUSH), AND adjust PCV-627 for MAXIMUM flow per FI-664.

6.2.65 After RI-665 shows radiation has decreased significantly, place HC-628-1 to position 3 (FLUSH V-610 LOOP).

6.2.66 <u>WHEN</u> the radiation no longer decreases, place HC-628-1 to position 4 (FLUSH P-601 LOOP).

6.2.67 <u>WHEN</u> the radiation no longer decreases, place switch HC-628-1 to position 5 (FLUSH P-601 LOOP).

6.2.68 <u>WHEN</u> the radiation no longer decreases, place switch HC-628-1 to position 6 (FLUSH PIPING STATION).

6.2.69 Flush for 3 minutes.

6.2.70 Place HC-628-1 to position 7 (FLUSH CV-622 LOOP).

6.2.71 <u>IF</u> any abnormal radiation levels are indicated on RI-665,
<u>THEN</u> repeat 6.2.65 through 6.2.70.

6.2.72 Place HC-626 to OFF.

6.2.73 Place HC-628-1 to OFF.

6.2.74 Turn PCV-627 fully counterclockwise.

6.2.75 <u>IF</u> no additional sampling is required,
<u>THEN</u> perform A.2-417 (DRAIN THE TRAP, SUMP, AND COLLECTOR OF POST ACCIDENT SAMPLING SYSTEM).

6.2.76 Turn HC-730 to stop.

6.3 Sample Transport and Analysis

6.3.1 Transport the large volume liquid sample or dissolved gas sample in a shielded container for high activity samples or use a remote carrying device for low activity samples.

6.3.2 Perform analysis requested by REC/CC/CSL IAW Chemistry Manual Procedures.

6.3.3 <u>IF</u> a large volume sample is to be sent off-site for analysis,
<u>THEN</u> notify the REC for instructions.

6.3.4 Complete Form 5790-414-01. Run computer program PASGAS to obtain C_T, C_0 ppm, C_H scc/kg. Backup equations, conditions and constants are identified in FIGURES 7.1 through 7.7 of this procedure.

7.0 FIGURES

FIGURE

7.1 Symbols, Assumptions, and Accuracy of Dissolved Gas Analyses Symbols

The following section identifies the symbols used in the calculations.

C_T = Concentration of total dissolved gas in the reactor coolant, scc/kg water

C_0 = Concentration of dissolved oxygen in the reactor coolant, ppm or scc/kg water

C_H = Concentration of dissolved hydrogen in the reactor coolant, scc/kg water

P_1 = Initial pressure in the gas collection chamber after evacuation, psia

P_2 = Final pressure in the gas collection chamber after expansion, psia

P_V = Water vapor pressure at water temperature, psia

T_L = Water temperature, °F

S_H = Solubility of hydrogen in water, scc/kg H_2O - Atm

S_O = Solubility of oxygen in water, scc/kg H_2O - Atm

V_S = Volume of dissolved gas sample in a syringe, cc (2 cc's by procedure)

N_O = Moles of dissolved oxygen at standard condition STP in a sample, scc

N_H = Moles of dissolved hydrogen at standard condition STP in a sample, scc

V_O = % Volume of oxygen in gas vial, as determined by gas chromatography

V_H = % Volume of hydrogen in gas vial, as determined by gas chromatography

V_G = Experimentally determined volume of V-662, (8.72 cc's)

V_L = Experimentally determined volume of V-610, (138.70 cc's)

FIGURE

7.1 Symbols, Assumptions, and Accuracy of Dissolved Gas Analyses (cont'd)

Assumptions for Total Dissolved Gas Calculation Method

The following assumptions are used in this sampling procedure and calculation.

1. Any measurable total dissolved gas concentration will be all hydrogen.
2. Equilibrium between the gas phase and liquid phase has been reached.
3. Residual gas in the gas collection chamber does not diffuse into the liquid.
4. Any gas bubbles coming out of solution prior to expansion stays with its associated liquid.
5. Gases obey Henry's and Ideal Gas Law.
6. Volume of the gas and liquid space is known.
7. Temperature of the gas collection area is assumed to be 90°F before expansion and 120°F after expansion.
8. Water density is assumed to be constant at 62.00 lb_m per cubic foot.

Assumptions for Dissolved Gas Grab Sample Calculation Method

1. Equilibrium between the gas phase and liquid phase has been reached.
2. Any gas bubbles coming out of solution prior to expansion stays with its associated liquid.
3. Gases obey Henry's and Ideal Gas Law.
4. Volume of the gas and liquid space is known.
5. Temperature of the gas collection area is assumed to be 90°F before expansion and 120°F after expansion.
6. Water density is assumed to be constant at 10^{-3} Kg/cc.
7. Dissolved gas evolved from the liquid phase is assumed to be well mixed with the air in the gas collection area.
8. Volume of the needle is negligible.

Accuracy

The accuracy of the total dissolved gas measurement for the GE PASS has been determined by GE to be at least ± 50% for dissolved gas concentrations between 25 cc/kg and 50 cc/kg and at least ± 30% for concentrations greater than 50 cc/kg.

FIGURE

7.2 Hydrogen Solubility in Water

The following solubility data is a function of liquid sample temperature and is used in the calculation method.

T_L (°F)	S_H (scc/kg-Atm)	T_L (°F)	S_H (scc/kg-Atm)
60	18.56	110	16.56
62	18.34	112	16.45
64	18.22	114	16.45
66	18.11	116	16.45
68	18.00	118	16.45
70	17.89	120	16.45
72	17.67	122	16.45
74	17.56	124	16.45
76	17.56	126	16.45
78	17.45	128	16.45
80	17.34	130	16.45
82	17.22	132	16.45
84	17.11	134	16.45
86	17.11	136	16.56
88	17.00	138	16.56
90	16.89	140	16.56
92	16.89	142	16.56
94	16.78	144	16.56
96	16.78	146	16.67
98	16.67	148	16.67
100	16.67	150	16.67
102	16.67		
104	16.56		
106	16.56		
108	16.56		

FIGURE

7.3 Oxygen Solubility in Water

The following solubility data is a function of liquid sample temperature and is used in the calculation method.

T_L (°F)	S_O (scc/kg-Atm)	T_L (°F)	S_O (scc/kg-Atm)
60	37.04	110	24.56
62	36.27	112	24.26
64	35.50	114	24.02
66	34.80	116	23.79
68	34.11	118	23.49
70	33.42	120	23.25
72	32.80	122	23.02
74	32.19	124	22.79
76	31.57	126	22.64
78	31.03	128	22.41
80	30.49	130	22.25
82	29.95	132	22.02
84	29.45	134	21.87
86	28.95	136	21.71
88	28.49	138	21.56
90	28.11	140	21.41
92	27.64	142	21.25
94	27.26	144	21.10
96	26.87	146	20.94
98	26.49	148	20.84
100	26.18	150	20.71
102	25.80		
104	25.49		
106	25.18		
108	24.87		

FIGURE

7.4 Water Vapor Pressure

The following water vapor data is a function of liquid sample temperature and is used in the calculation method.

T_L (°F)	P_V (psia)	T_L (°F)	P_V (psia)
60	.2561	110	1.275
62	.2749	112	1.351
64	.2950	114	1.430
66	.3163	116	1.513
68	.3389	118	1.601
70	.3629	120	1.693
72	.3884	122	1.789
74	.4155	124	1.890
76	.4442	126	1.996
78	.4746	128	2.107
80	.5068	130	2.223
82	.5239	131	2.284
84	.5409	132	2.345
86	.5770	134	2.472
88	.6152	136	2.605
90	.6555	138	2.744
92	.6981	140	2.889
94	.7432	142	3.041
96	.7906	144	3.200
98	.8936	146	3.365
100	.9492	148	3.538
102	1.008	150	3.718
104	1.070		
106	1.135		
108	1.203		

Source: ASME Steam Tables, 1967

I/plr

FIGURE

7.5 Total Dissolved Gas Calculation Method

1. Input Parameters

The following values must be obtained to calculate total dissolved gas concentrations:

a. Temperature of liquid sample, T_L, °F
b. Final pressure of gas, P_2, psia
c. Initial pressure of gas, P_1, psia
d. Solubility of hydrogen at temperature of liquid sample, S_H, scc/kg-Atm (from FIGURE 7.2)
e. Pressure of water vapor at temperature of liquid sample, P_V, psia (from FIGURE 7.4)

2. Equation

Total Dissolved Gas Concentration in scc/kg

$$C_T = \frac{1}{138.70} (9.432\ S_H + 501.1)\ (P_2 - P_V - (1.05\ P_1))$$

NOTE: Record result C_T on Form 5790-414-01.

FIGURE

7.6 Recommended Conditions for Taking Dissolved Gas Grab Sample

1. IF total gas concentration (C_T) > 40 scc/kg,
   THEN dissolved oxygen is < 0.1 ppm, record this result on Form 5790-414-01,
   ELSE determine the dissolved oxygen concentration in accordance with Chem Manual I.1.36, Gaseous H_2, O_2 and N_2 concentrations, and record result on Form 5790-414-01.

BASES

The 40 scc/kg takes into account other potential gases and the accuracy of the measurement. GE assumes a 50% measurement error on the C_T determination.

FIGURE

7.7 Dissolved Gas Grab Sample Calculation Method

Criteria

1. Input Parameters

   The following values must be obtained prior to calculating dissolved gas concentrations:

   a. Temperature of liquid sample, T_L, °F (use to determine S_O and S_H values)
   b. Final pressure of gas, P_2, psia
   c. Initial pressure of gas, P_1, psia
   d. Volume of dissolved gas sample in a syringe, V_S, cc (2 cc's by procedure)
   e. % volume of oxygen in gas vial, as determined by gas chromatography, V_O.
   f. Moles of dissolved oxygen at STP in a sample, as determined by gas chromatograph, N_O, scc.
   g. % volume of hydrogen in gas vial, as determined by gas chromatography, V_H.
   h. Moles of dissolved hydrogen at STP in a sample, as determined by gas chromatograph, N_H, scc.
   i. Solubility of hydrogen at temperature of liquid sample, S_H, scc/kg-Atm (from FIGURE 7.2)
   j. Solubility of oxygen at temperature of liquid sample, S_O, scc/kg-Atm (from FIGURE 7.3)

2. Equation

   To Calculate Moles of Oxygen from Gas Chromatography Results:

   $N_O = 2.575E\text{-}8 * V_S * P_2 * V_O$

   For Dissolved Oxygen Concentration in scc/kg (Grab Sample):

   $C_O = 38.64\ N_O + 0.7254\ S_O\ N_O - 0.8003\ P_1$

   For Dissolved Oxygen Concentration in ppm (Grab Sample):

   $$C_O = \frac{C_O}{0.77}$$

   To Calculate Moles of Hydrogen from Gas Chromatography Results:

   $N_H = 2.574E\text{-}8 * V_S * P_2 * V_H$

   For Dissolved Hydrogen Concentration in scc/kg (Grab Sample):

   $C_H = 0.7254\ N_H\ S_H + 38.6\ N_H$

NOTE: Record results on Form 5790-414-01.

l/plr

FIGURE

7.8 Forms Utilized in the Procedure

1. 5790-414-01 Dissolved Gas Sampling and Analysis Checklist

I/plr