ATTACHMENT 3
Pre-Dive Checklist
Page 1 of 1

(USED FOR SUBSEQUENT DIVES AFTER CREW'S INITIAL BRIEF. MAY BE PERFORMED IN ANY ORDER)

PRE-DIVE CHECKLIST (complete before each dive)	Initial - N/A
1. Complete a pre-job briefing (discussion to include dive area boundaries, dose rate information and task(s)).	MKA
2. Verify two underwater survey instruments are in calibration and source checked and are available.	MKA
3. Verify water clarity and underwater lighting adequate.	MKA
4. Verify dive site survey is performed (historical survey available for initial dive) and methodology by RP Supervision approved.	MKA
5. Verify dive suit is wet prior to diving.	MKA
6. Verify diver's suit(s) is surveyed and meets the requirements of step 4.3.5	MKA
7. Verify helmet dosimetry attached with wire/plastic ties, when applicable. Do not use material, such as plastic bags or tape, which could block diver's exhalation valve.	N/A
8. Verify diver dosimetry in proper location (e.g., EDs, TLDs, Extremity, etc.).	MKA
9. Verify remote dosimetry equipment is operational.	N/A
10. Verify two-way voice communications are available and operational.	MKA
11. Verify approved method of visual contact is available.	MKA
12. Verify survey instrumentation used by diver is operable.	MKA
13. Verify in-leakage test of diver suit has been performed.	MKA
14. Verify that breathing air is monitored.	MKA
15. Evaluate the need for vacuuming and shielding.	MKA
16. Ensure all prerequisites of RP-AA-461 are met prior to dive operations.	MKA
17. Discuss immediate actions for each the following: CO alarm, High Rad alarm, CAM alarm, diver disorientation, diver signaled to leave, failure of underwater survey instrumentation, diver reaches pre-established dose limits, radiological aspects of dive can NOT be maintained or are suspect	MKA
18. Discuss when the dive operations shall be suspended as per step 4.4.7.	MKA
19. Verify with Diver Supervisor that Ops Shift Supervision has been notified prior to start of dive evolutions.	MKA
20. Ensure appropriate controls are in place for dive evolutions in a high dose rate gradient area.	MKA
21. Ensure water are within limits. (<95° F unless approved by Dive Supervisor and prior to notification to RP/Safety)	MKA
22. Discuss approved dose levels with divers.	MKA
23. When meeting the requirements of step 3.3.11, ensure a documented plan exists with the appropriate approvals when evaluating diver safety.	MKA

Gordon Swift	5/19/09
Divers Name (Print)	**Date**
MKA	5/19/09
RP Technician (signed)	**Date**
	5/19/09
RP Supervision Review (signed)	**Date**

ATTACHMENT 6
Diver-Performed Survey Verifications
Page 1 of 1

DIVER'S NAME: Gordon Swith **DATE OF DIVE:** 5/19/09
GENERAL DIVE LOCATION: CST

Survey of Dive Area

	Time	RPT Init.	Instr. Type	Serial Number	Cal. Due Date	Location of Survey	Maximum Reading
1st Survey	10:45	[redacted]	AMP100	76499	10/3/09	F. Hex	227 mrem/hr
2nd Survey	11:40	[redacted]	AMP100	76459	10/3/09	F. Hex	86 mrem/hr
3rd Survey	11:40	[redacted]	AM 100	76499	10/3/09	Diver G/A	<1-10 mrem/hr
4th Survey							mrem/hr
5th Survey							mrem/hr
6th Survey							mrem/hr
7th Survey							mrem/hr
8th Survey							mrem/hr
9th Survey							mrem/hr
10th Survey							mrem/hr
11th Survey							mrem/hr
12th Survey							mrem/hr
13th Survey							mrem/hr

[redacted] 5/19/09
RP Technician (signed) Date

[redacted] 5/19/09
RP Supervision (signed) Date

ATTACHMENT 5
Diver Surveys In and Out of Water
Page 1 of 1

Diver's Name: Gordon Smith **Dive Location:** CST **Date of Dive:** 5/19/09

In Water – Survey On Diver

	Time	RPT Init	Instr. Type	Serial Number	Cal Due Date	Location on Diver	Max Reading
1st Survey							____ mrem/hr
2nd Survey							____ mrem/hr
3rd Survey							____ mrem/hr
4th Survey							____ mrem/hr
5th Survey							____ mrem/hr
6th Survey							____ mrem/hr
7th Survey							____ mrem/hr
8th Survey							____ mrem/hr

Out of Water – Survey On Diver

	Time	RPT Init	Instr. Type	Serial Number	Cal Due Date	Location on Diver	Max Reading W/O (Uncorrected)	Reading W/C
1st Survey	12:10	MSA	RO2	73357	8/11/09	All	<0.5 mrad/hr	<0.5 mrem/hr
2nd Survey							____ mrad/hr	____ mrem/hr
3rd Survey							____ mrad/hr	____ mrem/hr
4th Survey							____ mrad/hr	____ mrem/hr
5th Survey							____ mrad/hr	____ mrem/hr
6th Survey							____ mrad/hr	____ mrem/hr
7th Survey							____ mrad/hr	____ mrem/hr
8th Survey							____ mrad/hr	____ mrem/hr

- If Discrete Radioactive Particle(s) <10 mrad/hr, then RPT to survey diver suit approximately every 1 - 2 hr *(based on evolutions and work environment)*, perform detailed w/o & w/c survey, attempt to decon and allow diver to return to water.
- If Discrete Radioactive Particle >10 mrad/hr and <500 mrad/hr, then RPT to survey diver suit approximately every 1/2 hr, perform detailed survey, collect particles and allow diver to return to water.
- If Discrete Radioactive Particle >500 mrad/hr, then immediately remove diver from suit, perform detailed survey of suit, characterize particles and initiate dose assessment.

Mark Bertman — 5/19/09
RP Technician (signed) **Date**

Robert [illegible] — 5/19/09
RP Supervision Review (signed) **Date**

ATTACHMENT 4
Dive Checklist
Page 1 of 1

(Used for subsequent dives after crew's initial brief. May be performed in any order)

PRE-DIVE CHECKLIST (COMPLETE BEFORE EACH DIVE)

Date: 5/19/09 Diver's Name: Gordon Swift RWP # 54

Approved Dose Level: 2000 mrem Current Exposure: 696 mrem

Maximum Stay Time: N/A Minutes

POST-DIVE CHECKLIST (complete after each dive)	Initial - N/A
Dive Suit Survey Complete (including discrete radioactive particles)	MSA
Hose Off Diver	MSA
Decon Diver's Suit / Post Decon Survey documented	MSA
Electronic Dosimeter readings recorded	0.6 MSA
Multiple Dosimetry TLDs stored	N/A
Primary TLD returned to diver	N/A
Exposure investigation required?	☐Yes ☐No

			Electronic Dosimeter Exposure							
Time In / Time Out		Stay Time	Head	Left Arm	Left Leg	Chest	Back	Right Arm	Right leg	Other
In 1040	Out 12:05	85	N/A	N/A	N/A	0.6	N/A	N/A	N/A	N/A

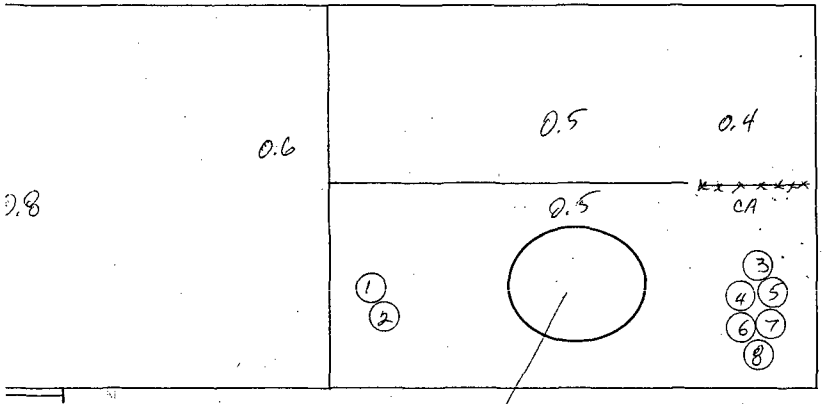
HAMETHANA RP Technician (signed) — 5/19/09 Date

RP Supervision Review (signed) — 5/19/09 Date

CGS Radiological Survey | No. CAA-09-03398 | Date 5/19/09 | Time 12:15 | Location CST Tank Top Enclosure

RWP OC-01-09-00054 | Reason Tank Inspection Remove Filters from tank & Transfer to TBOF

Rx. Power - 100 %



	SMEARABLE CONTAMINATION LOCATION	β γ ☆ DPM □ MRAD/HR	α DPM	AREA
1	I/S Helmet	<1000	<20	100cm²
2	O/S Helmet			
3	I/S Suit			
4	I/S Suit			
5	I/S Suit			
6	O/S Suit			
7	O/S Suit			
8	O/S Suit	<1000	<20	100cm²
9				
10				
11				
12				
13		N/T		
14				
15				
16				
17				
18				
19				
20				

INSTRUMENTATION DATA

RADIATION SURVEY
INST RO2
S/N 73357 BCF 4.31
CDD 8-11-09
INST AMP-100
S/N 76499 BCF N/A
CDD 10/3/09

CONTAMINATION SURVEY
INST RM-14
S/N 0010215
CDD 10/10/09
EFF 10% BKG 80 CPM
INST SAC-4
S/N 78465
CDD 11/17/09
CF 3.15 BKG 0.34 CPM

AIR SAMPLE DATA
FC <100 uC

L = Large Area Smear
NC = Not Counted
NA = Not Applicable
NT = Not Taken

Surveyor: (Print Name) Mark Hartman
Signature Mark Hartman Date 5/19/09
Reviewer: (Print Name) ROBERT HEFFNER
Signature Robert Heffner Date 5/19/09

Hd = Head, Ch = Chest, Kn = Knee, W = Waist

All dose rates in mrem/hr unless otherwise noted

☆ No Beta Detected Unless Otherwise Noted

□ No Beta Readings Taken

= Gamma G.A.
B = Beta
N = Neutron
/ # = Contact / 30 cm
B / # = β / γ

☆ = Smear
DF - Direct Frisk
X-X or - - = Rad Boundar
#/# = Beta / γ Contact
#/# = Beta / γ 30cm

Remarks: - No DRP's Detected on Divers Suit and Helmet.
- 12 more filters Removed From tank during This dive, Dose Rates on filters ranged from 220-780 mR/hr Contact.