

ATTACHMENT 3
Pre-Dive Checklist
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(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)).	MCA
2. Verify two underwater survey instruments are in calibration and source checked and are available.	MCA
3. Verify water clarity and underwater lighting adequate.	MCA
4. Verify dive site survey is performed (historical survey available for initial dive) and methodology by RP Supervision approved.	MCA
5. Verify dive suit is wet prior to diving.	MCA
6. Verify diver's suit(s) is surveyed and meets the requirements of step 4.3.5	MCA
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.	MCA
8. Verify diver dosimetry in proper location (e.g., EDs, TLDs, Extremity, etc.).	MCA
9. Verify remote dosimetry equipment is operational.	N/A
10. Verify two-way voice communications are available and operational.	MCA
11. Verify approved method of visual contact is available.	Camera
12. Verify survey instrumentation used by diver is operable.	MCA
13. Verify in-leakage test of diver suit has been performed.	MCA
14. Verify that breathing air is monitored.	MCA
15. Evaluate the need for vacuuming and shielding.	Yes
16. Ensure all prerequisites of RP-AA-461 are met prior to dive operations.	MCA
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	MCA
18. Discuss when the dive operations shall be suspended as per step 4.4.7.	MCA
19. Verify with Diver Supervisor that Ops Shift Supervision has been notified prior to start of dive evolutions.	MCA
20. Ensure appropriate controls are in place for dive evolutions in a high dose rate gradient area.	MCA
21. Ensure water are within limits. (<95° F unless approved by Dive Supervisor and prior to notification to RP/Safety)	MCA
22. Discuss approved dose levels with divers.	MCA
23. When meeting the requirements of step 3.3.11, ensure a documented plan exists with the appropriate approvals when evaluating diver safety.	MCA

MCA
5/12/09
Divers Name (Print) Mark Swinth Date 5/12/09
RP Technician (signed) Mark Swinth Date 5/12/09
RP Supervision Review (signed) Mark Swinth Date 5/12/09

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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: <u>5/12/09</u>	Diver's Name: <u>Gordon Swinith</u> RWP # <u>54</u>
Approved Dose Level: <u>2000</u> mrem	Current Exposure: <u>689</u> mrem
Maximum Stay Time: <u>N/A</u>	Minutes

POST-DIVE CHECKLIST (complete after each dive)		Initial: <u>N/A</u>
Dive Suit Survey Complete (including discrete radioactive particles)		<u>N/A</u>
Hose Off Diver		<u>N/A</u>
Decon Diver's Suit / Post Decon Survey documented		<u>N/A</u>
Electronic Dosimeter readings recorded		<u>N/A</u>
Multiple Dosimetry TLDs stored		<u>N/A</u>
Primary TLD returned to diver	<u>using Primary TLD on Chest</u>	<u>N/A</u>
Exposure investigation required?		<input type="checkbox"/> Yes <input type="checkbox"/> No

Electronic Dosimeter Exposure										
Time In	Time Out	Stay Time	Head	Left Arm	Left Leg	Chest	Back	Right Arm	Right Leg	Other
In 1335	Out 1550	135	N/A	N/A	N/A	0.6	N/A	N/A	N/A	N/A

Mark Hartman
RP Technician (signed)
Jonathan L. Hartman
RP Supervision Review (signed)

5/12/09
Date
5/12/09
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: 5/12/09

In Water – Survey On Diver

	Time	RPT Init	Instr. Type	Serial Number	Cal Due Date	Location on Diver	Max Reading
1 st Survey							mrem/hr
2 nd Survey							mrem/hr
3 rd Survey							mrem/hr
4 th Survey							mrem/hr
5 th Survey							mrem/hr
6 th Survey							mrem/hr
7 th Survey							mrem/hr
8 th 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
1 st Survey	1550	MLA	10:2	73356	2/2/10	All	<0.5 mrad/hr	<0.5 mrem/hr
2 nd Survey							mrad/hr	mrem/hr
3 rd Survey							mrad/hr	mrem/hr
4 th Survey							mrad/hr	mrem/hr
5 th Survey							mrad/hr	mrem/hr
6 th Survey							mrad/hr	mrem/hr
7 th Survey							mrad/hr	mrem/hr
8 th 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 Hartman
RP Technician (signed)

5/12/09
Date

Jackot J. J.
RP Supervision Review (signed)

5/12/09
Date

OCGS Radiological Survey	No. CAA-09-03227	Date 5/12/09	Time 16:30	Location CST Tank Top Enclosure	
		RWP OC-01-09-00054	Reason Tank Inspection + Vacuuming of		
		Rx. Power - 100 %	I/S Bottom of Tank		
		SMEARABLE CONTAMINATION			
		LOCATION	B γ DPM □ MRAD/HR	α DPM	AREA
		1 I/S Helmet	<1K	<20	100cm ²
2 O/S Helmet					
3 I/S Dive Suit					
4 O/S Dive Suit					
5 I/S Dive Suit					
6 O/S Dive Suit					
7 O/S Dive Suit	<1K				
8 O/S Dive Suit	1K				
9 O/S Dive Suit	2K	<20	100cm ²		
10 Umbilical	2K	NT	L		
11 Cage	4K				
12 Helmet	<1K				
13 Manway	<1K				
14 Floor	2K				
15 Weight Belt/Harness	5K				
16 Clean Area	<1K	NT	L		
17					
18					
19					
20					
Surveyor: (Print Name) <u>Maat Hartman</u> / JBvca Signature <u>[Signature]</u> Date <u>5/12/09</u> Reviewer: (Print Name) <u>[Signature]</u> Signature <u>[Signature]</u> Date <u>5/12/09</u> Hd = Head, Ch = Chest, Kn = Knee, W = Waist All dose rates in mrem/hr unless otherwise noted		# = Gamma G.A. # B = Beta # N = Neutron # / # = Contact / 30 cm # B / # = β / γ <input checked="" type="checkbox"/> No Beta Detected Unless Otherwise Noted		☉ = Smear DF - Direct Frisk X-X or -- = Rad Boundaries #/# = Beta / γ Contact #/# = Beta / γ 30cm <input type="checkbox"/> No Beta Readings Taken	
Remarks: #1 Filter=290, #2 Filter=300, #3=350, #4=300 AMP-100 #76026 used to dose Kate Filters under water. #A/S #515-09 2.65E-11 <u>uCi</u>					