



July 18, 2017

Ms. Rachel Browder  
U.S. Nuclear Regulatory Commission  
Region IV  
1600 East Lamar Boulevard  
Arlington, TX 76011

**SUBJECT: ORISE CONTRACT NO. DE-SC0014664  
LETTER REPORT FOR ANALYTICAL RESULTS FOR FIVE SOIL SAMPLES  
ASSOCIATED WITH THE SAN ONOFRE NUCLEAR GENERATING  
STATION IN SAN CLEMENTE, CALIFORNIA  
[INSPECTION REPORT NO. 05000361/2017-002 & 05000362/2017-002]  
[DOCKET NO. 50-361 & 50-362](RFTA NO. 17-001)  
DCN: 5267-LR-09-0; SDG 12678-8**

Dear Ms. Browder:

The Oak Ridge Institute for Science and Education (ORISE) is pleased to provide the enclosed data package for five soil samples received on June 14, 2017 from the San Onofre Nuclear Generating Station in San Clemente, California. The samples were received in good condition. The samples were analyzed by gamma spectroscopy for Cs-137 and Co-60. The analytical data, along with the procedure reference, are presented in the attached report. The analysis was delayed due to contractual issues.

Quality Control (QC) requirements were met for this analysis. The QC files are available for your review upon request.

Please feel free to contact me at 865.576.9184 or Forrest Smith at 865.574.9802 with any questions or comments.

Sincerely,

Wade Ivey  
Manager Laboratory  
ORAU

WPI:lw

Enclosures

Electronic distribution: T. Carter, NRC                      S. Roberts, ORAU                      T. Vitkus, ORAU  
E. Bailey, ORAU                      D. Hagemeyer, ORAU  
File code: 5267;                      Lab code: 12678

Distribution approval and concurrence:	Initials
Quality Review	LW for JV
Technical Review	DK

NRC FORM 303 (4-2004) U.S. NUCLEAR REGULATORY COMMISSION <b>REQUEST FOR ANALYSIS AND CHAIN OF CUSTODY</b> LABORATORY -- ORISE				LABORATORY USE ONLY			
SAMPLE LOCATION (LICENSEE) SONGS - Synchronous Condenser				CONTROL NUMBER RFTA-16-001			
				LICENSE NO.	DOCKET NO. 50-361 & 50-362		
SAMPLE SUBMITTED				DATE SAMPLES SUBMITTED			
# TOTAL 5	TYPE SOIL	VOLUME 500 ml	WEIGHT see page 2	PRIORITY <input checked="" type="checkbox"/> ROUTINE <input type="checkbox"/> URGENT			
				SAMPLE COLLECTION INTERVAL			
				START see page 2	STOP	MONTH DAY YEAR TIME	
INSPECTOR RESPONSIBLE Rachel Browder			TELEPHONE NUMBER 817-200-1452				
ANALYSIS TO BE PERFORMED		LIST DESIRED LLD (Optional)	OTHER TYPE OF ANALYSIS (Specify)		LIST DESIRED LLD (Optional)		
<input type="checkbox"/> GROSS ALPHA (GA)							
<input type="checkbox"/> GROSS BETA (GB)							
<input checked="" type="checkbox"/> GAMMA SPEC (GS)							
<input type="checkbox"/> TRITIUM (H3)							
<input type="checkbox"/> CARBON-14 (C14)							
<input type="checkbox"/> IODINE-125 (I125)							
RELINQUISHED BY <i>[Signature]</i>	RECEIVED BY Wade P. Gray	DATE 5/23/17	TIME 0800 hr	REASON FOR CHANGE OF CUSTODY Ship to ORISE			
Fed Ex		6/14/17	1230	Delay in signing due to funding issues w/ NRC			
FEE RECOVERABLE <input type="checkbox"/> NO <input checked="" type="checkbox"/> YES IF YES TAC NUMBER _____							
REMARKS Return samples to: Steven Vaughan, 949-368-7788 San Onofre Nuclear Generating Station 5000 Pacific Coast Hwy, Bldg T-10, San Clemente 92672  Radionuclides of concern: Cesium-137, Cobalt-60 Action levels - 10% of NRC screening criteria for soil surface: Cs-137 - 1.1 pCi/g; Co-60 - .38 pCi/g NRC Inspection Report Number: 05000361/2017-002 and 05000362/2017-002  NOTE: SAMPLES WILL BE DISCARDED AFTER ANALYSIS UNLESS REASONS ARE NOTED IN REMARKS ABOVE.							

FED EX # 7792-0507-9986



Page 1 of 1	<b>Project Name:</b> San Onofre Nuclear Generating Station	<b>ORAU/ORISE Chain of Custody and Analytical Request</b>	ORAU/ORISE 1299 Bethel Valley Road, Bldg SC-200 Oak Ridge, TN 37831 Phone: (865) 576-9184 Fax: (865) 241-3248
<b>Project #:</b> 201212678	<b>COC #:</b> 1707-002		

<b>Client Name:</b> U.S. Nuclear Regulatory Commission	<b>Phone #:</b> 817.276.6552	<b>Fax #:</b>
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<b>Address:</b> 612 E. Lamar Blvd	<b>Email:</b> Rachel.Browder@nrc.gov
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<b>Collected By:</b> Client	<b>Send Results To:</b> Rachel Browder
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Client Sample ID	Date Collected (mm-dd-yy)	Time Collected (military)	Sample Matrix (1)	Field Filtered (2)	ORAU/ORISE Lab Sample ID (Lab Use Only)	Total # of containers	Sample Analysis Requested (3)	Comments
A1501 303F1 LA4S1 L04FN Grade 00001	05/18/17	13:20	S	No	12678S0011	1	GAMMA SPEC	
A1501 303F1 LA4S1 L04FN Grade 00002	05/18/17	13:40	S	No	12678S0012	1	GAMMA SPEC	
A1501 303F1 LA4S1 L04FN Grade 00003	05/18/17	14:00	S	No	12678S0013	1	GAMMA SPEC	
A1501 303F1 LA4S1 L04FN Grade 00004	05/18/17	14:15	S	No	12678S0014	1	GAMMA SPEC	
A1501 303F1 LA4S1 L04FN Grade 00005	05/18/17	14:30	S	No	12678S0015	1	GAMMA SPEC	

<b>Gamma Isotopes:</b> CO60, CO60, CS137
<b>Alpha Isotopes:</b>
<b>LSA:</b>

<b>TAT Requested:</b> 28	<b>Rush:</b>	<b>Fax Results</b>	<b>Fax #:</b>
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Chain of Custody Signatures						Sample Shipping and Delivery Details	
Relinquished By (Signed)	Date	Time	Received By (Signed)	Date	Time	ORAU/ORISE PM:	Phone #:
Fed Ex	6/14/2017	12:30:00PM	IveyWade <i>Wade P. Ivey</i>	6/14/2017	12:30:00PM	Method of Shipment: FedEx	Date Shipped: 05/23/17
<b>EDD Required:</b>	<b>Report Type:</b>	<b>Received in Good Condition: Yes</b>				<b>Airbill #:</b> 7792-0507-9986	
<b>PEMS Project ID:</b>	<b>PEMS SOW ID:</b>					<b>Airbill #:</b>	

- 1) Matrix Codes: S=Soil, W=Water, M=Miscellaneous, A=Air Filter, R=Smear/Wipe
- 2) Field Filtered: For liquid matrices, indicate -Y- for yes the sample was field filtered or -N- for sample was not field filtered.
- 3) If the integrity of the samples and/or sample packaging are in question, provide details in the CoC comment field

**COC Comments:**

APPENDIX A

ORISE Sample Receipt Form				
OAK RIDGE INSTITUTE FOR SCIENCE AND EDUCATION				
Client/Task Name: <u>SONGS</u>		Project/Task # <u>2012 12678</u>		
Received by: <u>Wade Ivey</u>		Date Received: <u>6/14/17</u>		
Tracking # <u>FedEx 7792-0507-9986</u>		Shipment Identified as foreign soil? (circle) YES <u>(NO)</u> If YES, notify the manager before proceeding.		
Estimated Activity Level (circle): LA / MA / HA		Sample Delivery Group Number: <u>12678-8</u>		
Sample Receipt Criteria	Yes	No	N/A	Comments / Qualifiers (Required if receipt criteria marked "No")
Shipping Containers received intact and sealed?	<input checked="" type="checkbox"/>			
Appropriate sample containers used?	<input checked="" type="checkbox"/>			
Are there any special holding times? Rad analysis hold time is 6 months.		<input checked="" type="checkbox"/>		
Sufficient sample volume to perform the requested analyses?	<input checked="" type="checkbox"/>			
Individual sample containers security sealed?	<input checked="" type="checkbox"/>			
Chain of custody forms included?	<input checked="" type="checkbox"/>			
Water Samples at proper pH?			<input checked="" type="checkbox"/>	As Received pH: Preservative Matrix (circle): HNO <sub>3</sub> / HP / HCl
Did water sample require pH adjustment?			<input checked="" type="checkbox"/>	Amount of acid added: Type of acid added (circle): HNO <sub>3</sub> /HCl/HP Final sample pH:
Sample ID's from COC match container ID's?		<input checked="" type="checkbox"/>		<u>COC has LA351</u>
Date and Time from COC match container Date and Time?	<input checked="" type="checkbox"/>			<u>Containers have LA451</u>
Number of containers received match the number indicated on the COC?	<input checked="" type="checkbox"/>			
Is the COC form properly signed in the relinquished by/received by section?	<input checked="" type="checkbox"/>			

Form filled by: Wade P. Ivey  
Date: 6/14/17

Note: Samples arrive at lab prior to 6/14/17. But due to NRC contract/funding issues, we were not allowed to work on these until 6/14/17, per Feriha Bailey

# Gamma Spectrometry Summary Results By Analyte



Report Date: July 17, 2017

<b>Analyte:</b>	Co-60	SOP (Rev. #)	CP1 (21)
Project Name:	San Onofre Nuclear Generating Station	Energy Signature:	1332.49 (KeV)
Project # :	201212678	SDG # :	201212678-8

Client Sample ID:	Lab Sample ID:	Result	TPU (2s)	MDC	Units	Qualifier Flag	Batch #
A1501 303F1 LA4S1 L04FN Grade 00001	12678S0011	-0.016	0.023	0.043	pCi/g	U	GS0531
	12678S0011Dup	0.010	0.017	0.038	pCi/g	U	GS0531
A1501 303F1 LA4S1 L04FN Grade 00002	12678S0012	-0.005	0.020	0.040	pCi/g	U	GS0531
A1501 303F1 LA4S1 L04FN Grade 00003	12678S0013	-0.019	0.022	0.041	pCi/g	U	GS0531
A1501 303F1 LA4S1 L04FN Grade 00004	12678S0014	0.011	0.021	0.046	pCi/g	U	GS0531
A1501 303F1 LA4S1 L04FN Grade 00005	12678S0015	0.006	0.022	0.047	pCi/g	U	GS0531

**Electronically Validated By:**  
William Smith- 7/10/2017 12:04

**Electronically Approved By:**

Wade Ivey 7/13/2017 10:36

Qualifier Flags:  
U = Analyte not detected (< MDC)

TPU = Total Propagated Uncertainty  
MDC = Minimum Detectable Concentration

# Gamma Spectrometry Summary Results By Analyte



Report Date: July 13, 2017

<b>Analyte:</b>	Cs-137	SOP (Rev. #)	CP1 (21)
Project Name:	San Onofre Nuclear Generating Station	Energy Signature:	661.66 (KeV)
Project # :	201212678	SDG # :	201212678-8

Client Sample ID:	Lab Sample ID:	Result	TPU (2s)	MDC	Units	Qualifier Flag	Batch #
A1501 303F1 LA4S1 L04FN Grade 00001	12678S0011	0.003	0.015	0.033	pCi/g	U	GS0531
	12678S0011Dup	-0.003	0.013	0.029	pCi/g	U	GS0531
A1501 303F1 LA4S1 L04FN Grade 00002	12678S0012	-0.003	0.015	0.032	pCi/g	U	GS0531
A1501 303F1 LA4S1 L04FN Grade 00003	12678S0013	-0.007	0.017	0.035	pCi/g	U	GS0531
A1501 303F1 LA4S1 L04FN Grade 00004	12678S0014	-0.002	0.018	0.038	pCi/g	U	GS0531
A1501 303F1 LA4S1 L04FN Grade 00005	12678S0015	-0.004	0.018	0.038	pCi/g	U	GS0531

**Electronically Validated By:**  
William Smith- 7/10/2017 12:04

**Electronically Approved By:**

Wade Ivey 7/13/2017 10:36

Qualifier Flags:

U = Analyte not detected (< MDC)

TPU = Total Propagated Uncertainty

MDC = Minimum Detectable Concentration