

State of Colorado
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203 Phone: (303) 829-2100 Fax: (303) 829-2109

DOCUMENT
#2215963

SUNDRY NOTICE

Submit original plus one copy. This form is to be used for general, technical and environmental sundry information. For proposed or completed operations, describe in full on Technical Information Page (Page 2 of this form.) Identify well or other facility by API Number or by OGCC Facility ID. Operator shall send an informational copy of all sundry notices for wells located in High Density Areas to the Local Government Designee (Rule 603b.)

RECEIVED
9/14/2011

1. OGCC Operator Number: 96850	4. Contact Name: Howard Harris
2. Name of Operator: Williams Production RMT Company LLC	Phone: 303-629-8086
3. Address: 1001 17th St, Suite 1200	Fax: 303-629-8268
City: Denver State: CO Zip: 80202	
5. API Number: 05-045-20420-00	OGCC Facility ID Number
6. Well/Facility Name: Federal	7. Well/Facility Number: SP 514-13
8. Location (Qtr/Clr, Sec, Twp, Rng, Meridian): NWSW Sec 13 T7S-R9SW	
9. County: Garfield	10. Field Name: Parachute
11. Federal, Indian or State Lease Number: COC05173	

Survey Plat	
Directional Survey	X
Surface Egopt Diagram	
Technical Info Page	X
Other	

Complete the Attachment Checklist

OP OGCC

Location 40
421617

General Notice

<input type="checkbox"/> CHANGE OF LOCATION: Attach New Survey Plat (a change of surface qtr/Clr is substantive and requires a new permit)	
Change of Surface Footage from Exterior Section Lines:	<input type="checkbox"/> FHL/FEL <input type="checkbox"/> FEL/FWL
Change of Surface Footage to Exterior Section Lines:	<input type="checkbox"/>
Change of Bottomhole Footage from Exterior Section Lines:	<input type="checkbox"/>
Change of Bottomhole Footage to Exterior Section Lines:	<input type="checkbox"/>
Bottomhole location Qtr/Clr, Sec, Twp, Rng, Mer	<input type="checkbox"/> attach directional survey
Latitude	Distance to nearest property line
Longitude	Distance to nearest bldg, public rd, utility or RR
Ground Elevation	Distance to nearest lease line
	Is location in a High Density Area (rule 603b)? Yes/No
	Distance to nearest well same formation
	Surface owner consultation date:
GPS DATA:	
Date of Measurement	PDOP Reading
	Instrument Operator's Name
<input type="checkbox"/> CHANGE SPACING UNIT	
Formation	Formation Code
Spacing order number	Unit Acreage
	Unit configuration
<input type="checkbox"/> Remove from surface bond	
Signed surface use agreement attached	
<input type="checkbox"/> CHANGE OF OPERATOR (prior to drilling):	
Effective Date:	
Plugging Bond: <input type="checkbox"/> Blanket <input type="checkbox"/> Individual	
<input type="checkbox"/> CHANGE WELL NAME	
From:	NUMBER
To:	
Effective Date:	
<input type="checkbox"/> ABANDONED LOCATION:	
Was location ever built? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Is site ready for inspection? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Date Ready for inspection:	
<input type="checkbox"/> NOTICE OF CONTINUED SHUT IN STATUS	
Date well shut in or temporarily abandoned:	
Has Production Equipment been removed from site? <input type="checkbox"/> Yes <input type="checkbox"/> No	
MIT required if shut in longer than two years. Date of last MIT	
<input type="checkbox"/> SPUD DATE:	
<input type="checkbox"/> REQUEST FOR CONFIDENTIAL STATUS (6 mos from date casing set)	
<input type="checkbox"/> SUBSEQUENT REPORT OF STAGE, SQUEEZE OR REMEDIAL CEMENT WORK	
Method used	Cementing tool setting/perf depth
	Cement volume
	Cement top
	Cement bottom
	Date
*submit cbl and cement job summaries	
<input type="checkbox"/> RECLAMATION: Attach technical page describing final reclamation procedures per Rule 1004.	
Final reclamation will commence on approximately	
<input type="checkbox"/> Final reclamation is completed and site is ready for inspection.	

Technical Engineering/Environmental Notice

<input type="checkbox"/> Notice of Intent		<input checked="" type="checkbox"/> Report of Work Done
Approximate Start Date:		Date Work Completed: 9/9/11
Details of work must be described in full on Technical Information Page (Page 2 must be submitted.)		
<input type="checkbox"/> Intent to Recomplete (submit form 2)	<input type="checkbox"/> Request to Vent or Flare	<input type="checkbox"/> E&P Waste Disposal
<input checked="" type="checkbox"/> Change Drilling Plans	<input type="checkbox"/> Repair Well	<input type="checkbox"/> Beneficial Reuse of E&P Waste
<input type="checkbox"/> Gross Interval Changed?	<input type="checkbox"/> Rule 502 variance requested	<input type="checkbox"/> Status Update/Change of Remediation Plans
<input type="checkbox"/> Casing/Cementing Program Change	<input checked="" type="checkbox"/> Other: Radiological Analysis	for Spills and Releases
	Drill Cuttings	

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct and complete.

Signed: Howard Harris Date: 9/14/11 Email: Howard.Harris@Williams.com
Print Name: Howard Harris Title: Sr. Regulatory Specialist

COGCC Approved: [Signature] Title: Gen. Sup. Date: 10/25/11

CONDITIONS OF APPROVAL (IF ANY):

TECHNICAL INFORMATION PAGE



FOR OGCC USE ONLY

1. OGCC Operator Number:	96850	API Number:	05-045-20420-00
2. Name of Operator:	Williams Production RMT Company LLC OGCC Facility ID #		
3. Well/Facility Name:	Federal	Well/Facility Number:	SP 514-13
4. Location (QtrQtr, Sec, Twp, Rng, Meridian):	NWSW Sec 13 T7S-R95W		

This form is to be completed whenever a Sundry Notice is submitted requiring detailed report of work to be performed or completed. This form shall be transmitted within 30 days of work completed as a "subsequent" report and must accompany Form 4, page 1.

DESCRIBE PROPOSED OR COMPLETED OPERATIONS

Per the Rulison Sampling and Analysis Plan (RSAP) version 3, the attached letter and results along with this sundry are being submitted by Williams to the Colorado Oil and Gas Conservation Commission (COGCC) to document the drill cuttings results when drilling the closest well in a sector, and to demonstrate compliance with the RSAP. No verified Project Rulison related radionuclides were detected in the drill cutting samples; therefore, per the RSAP, the drill cuttings can be transported, re-used or disposed without prior approval from the COGCC.

See Attached letter and radiological testing results



September 9, 2011

Mr. Brandon Danforth
Williams Production RMT
1058 County Road 215
Parachute, CO 81635

Subject: Transmittal of Radiological Analysis Results for Drill Cuttings
Williams Federal SP 424-13 and SP 514-13 Gas Wells on the SP 13-13 Pad

Dear Mr. Danforth:

Per Williams's request, URS Corporation (URS) collected on August 9 and 24, 2011 composite samples of drill cuttings returned from the Williams Federal SP 424-13 and SP 514-13 Tier II gas wells on the SP 13-13 well pad. SP 424-13 and SP 514-13 are currently the closest gas wells in monitoring sectors 1 and 12, respectively. The drill cuttings sampled were stored in individual lined pits as they were returned from each well. The samples were designated W424-13-DC-CPTF and W514-13-DC-CPTF and were collected, composited, and analyzed in accordance with the Rulison Sampling and Analysis Plan (RSAP) Revision 3 dated July 31, 2010. The composite samples were sent by overnight carrier to GEL Laboratories LLC (GEL) in Charleston, South Carolina for analysis of gross alpha, gross beta, gamma-emitting radionuclides, strontium-90, and technetium-99. The samples were analyzed under GEL sample data group (SDG) numbers 283742 and 284732.

The laboratory data were independently validated by URS and generally found to be usable without qualification. Data that are deemed usable as qualified or unusable are identified in the data validation report and the laboratory certificates of analysis. The data validation reports and laboratory certificates of analysis are attached for your reference.

The results of the radiological analyses (Table 1) indicate that gross alpha, gross beta, and some naturally occurring gamma-emitting radionuclides were detected in the composite drill cuttings samples. Gross alpha and gross beta were detected at activities typical of natural background for subsurface rock formations. Gross alpha and gross beta activities are sourced from the decay of naturally occurring alpha emitters (uranium-238, thorium-232, and their

URS Corporation
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Denver, CO 80237
Tel: 303.694.2770
Fax: 303.694.3946



Williams Production RMT
Attn: Mr. Brandon Danforth
September 9, 2011
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daughters) and beta emitters (potassium-40 and radium-228) that occur in the subsurface rock formations.

Gamma-emitting radionuclides detected included naturally-occurring potassium-40, uranium-238, and daughter products of the uranium-238 (bismuth-214, lead-210, lead-214, thorium-230, and thorium-234), and thorium-232 (actinium-228, lead-212, radium-228, and thallium-208) decay series. Gamma-emitting radionuclide activities detected are typical of natural background radioactivity for the subsurface rock formations.

Based on the analytical results, no verified Project Rulison-related radionuclides were detected in either of the composite drill cuttings samples from the SP 424-13 and SP 514-13 Tier II gas wells.

Therefore, per the RSAP, since no verified Project Rulison radionuclides were detected, the drill cuttings can be transported, re-used, or disposed without approval from the Colorado Oil & Gas Conservation Commission (COGCC). This letter, along with a Sundry Notice Form 4, should be submitted by Williams to the COGCC to document the drill cutting results and demonstrate compliance with the RSAP.

URS appreciates the opportunity to perform these services for Williams. Please call me if you have any questions concerning this transmittal.

Sincerely,

A handwritten signature in black ink, reading "Richard L. Henry". The signature is written in a cursive style with a large, stylized "H" and "Y".

Richard L. Henry, PG
Senior Project Manager

cc: Project File

Table 1
Williams Federal SP 424-13 and SP 514-13 Drill Cuttings Radiological Results

Well Number	Well Type	Sample Date	Medium	Sample Type	Parameter	Activity	Counting Error	Reporting Limit	
SP424-13	Tier II	08/09/2011	DC	SA	Ac-228	1.07	0.312	0.235	
SP424-13	Tier II	08/09/2011	DC	SA	Bi-214	0.801	0.184	0.122	
SP424-13	Tier II	08/09/2011	DC	SA	Gross Alpha	15.7	5.57	3.27	
SP424-13	Tier II	08/09/2011	DC	SA	Gross Beta	20.8	5.05	6.01	
SP424-13	Tier II	08/09/2011	DC	SA	K-40	13.2	1.95	0.53	
SP424-13	Tier II	08/09/2011	DC	SA	Pb-212	0.943	0.144	0.0994	
SP424-13	Tier II	08/09/2011	DC	SA	Pb-214	0.952	0.194	0.127	
SP424-13	Tier II	08/09/2011	DC	SA	Ra-228	1.07	0.312	0.235	
SP424-13	Tier II	08/09/2011	DC	SA	Th-230	0.801	0.179	0.122	
SP424-13	Tier II	08/09/2011	DC	SA	Tl-208	0.297	0.0723	0.0589	
SP514-13	Tier II	08/24/2011	DC	SA	Ac-228	1.12	0.414	0.293	
SP514-13	Tier II	08/24/2011	DC	SA	Bi-214	0.802	0.205	0.169	
SP514-13	Tier II	08/24/2011	DC	SA	Gross Alpha	16.3	5.57	3.67	
SP514-13	Tier II	08/24/2011	DC	SA	Gross Beta	25.3	4.59	3.75	
SP514-13	Tier II	08/24/2011	DC	SA	K-40	15.7	2.1	0.666	
SP514-13	Tier II	08/24/2011	DC	SA	Pb-210	0.971	0.751	0.838	
SP514-13	Tier II	08/24/2011	DC	SA	Pb-212	1.2	0.182	0.103	
SP514-13	Tier II	08/24/2011	DC	SA	Pb-214	1.01	0.198	0.146	
SP514-13	Tier II	08/24/2011	DC	SA	Ra-228	1.12	0.414	0.293	
SP514-13	Tier II	08/24/2011	DC	SA	Th-230	0.802	0.201	0.169	
SP514-13	Tier II	08/24/2011	DC	SA	Th-234	1.56	0.896	0.978	
SP514-13	Tier II	08/24/2011	DC	SA	Tl-208	0.367	0.0914	0.0648	
SP514-13	Tier II	08/24/2011	DC	SA	U-238	1.56	0.896	0.978	

Table 1
Williams Federal SP 424-13 and SP 514-13 Drill Cuttings Radiological Results

Well Number	Well Type	Sample Date	Medium	Sample Type	Parameter	Activity	Counting Error	Reporting Limit	
SP424-13	Tier II	08/09/2011	DC	SA	Ag-110m	-0.00435	0.0372	0.0622	
SP424-13	Tier II	08/09/2011	DC	SA	Am-241	0.0955	0.128	0.228	
SP424-13	Tier II	08/09/2011	DC	SA	Ba-133	0.00467	0.0455	0.0676	
SP424-13	Tier II	08/09/2011	DC	SA	Ba-140	-0.0311	0.297	0.475	
SP424-13	Tier II	08/09/2011	DC	SA	Be-7	0.274	0.348	0.61	
SP424-13	Tier II	08/09/2011	DC	SA	Ce-139	-0.0173	0.0304	0.0477	
SP424-13	Tier II	08/09/2011	DC	SA	Ce-141	-0.00178	0.0622	0.102	
SP424-13	Tier II	08/09/2011	DC	SA	Ce-144	0.108	0.181	0.309	
SP424-13	Tier II	08/09/2011	DC	SA	Co-56	-0.0303	0.0439	0.0665	
SP424-13	Tier II	08/09/2011	DC	SA	Co-57	0.0183	0.0236	0.0409	
SP424-13	Tier II	08/09/2011	DC	SA	Co-58	0.00332	0.0403	0.0676	
SP424-13	Tier II	08/09/2011	DC	SA	Co-60	0.00685	0.0351	0.0606	
SP424-13	Tier II	08/09/2011	DC	SA	Cr-51	-0.264	0.386	0.615	
SP424-13	Tier II	08/09/2011	DC	SA	Cs-134	0.0587	0.0478	0.0893	
SP424-13	Tier II	08/09/2011	DC	SA	Cs-136	-0.0764	0.124	0.184	
SP424-13	Tier II	08/09/2011	DC	SA	Cs-137	0.0656	0.0424	0.0794	
SP424-13	Tier II	08/09/2011	DC	SA	Eu-152	-0.0185	0.117	0.17	
SP424-13	Tier II	08/09/2011	DC	SA	Eu-154	0.0454	0.138	0.24	
SP424-13	Tier II	08/09/2011	DC	SA	Eu-155	0.0648	0.0896	0.156	
SP424-13	Tier II	08/09/2011	DC	SA	Fe-59	0.0426	0.0835	0.152	
SP424-13	Tier II	08/09/2011	DC	SA	Hg-203	0.0594	0.0587	0.0598	
SP424-13	Tier II	08/09/2011	DC	SA	Ir-192	0.0374	0.0372	0.0667	
SP424-13	Tier II	08/09/2011	DC	SA	Mn-54	-0.00783	0.0432	0.0703	

Table 1
Williams Federal SP 424-13 and SP 514-13 Drill Cuttings Radiological Results

Well Number	Well Type	Sample Date	Medium	Sample Type	Parameter	Activity	Counting Error	Reporting Limit	
SP424-13	Tier II	08/09/2011	DC	SA	Na-22	0.0147	0.0485	0.0843	
SP424-13	Tier II	08/09/2011	DC	SA	Nb-94	-0.0196	0.0326	0.0511	
SP424-13	Tier II	08/09/2011	DC	SA	Nb-95	-0.0327	0.0494	0.0763	
SP424-13	Tier II	08/09/2011	DC	SA	Nd-147	0.0128	0.553	0.9	
SP424-13	Tier II	08/09/2011	DC	SA	Np-239	-0.12	0.364	0.593	
SP424-13	Tier II	08/09/2011	DC	SA	Pb-210	3.42	3.44	6.05	
SP424-13	Tier II	08/09/2011	DC	SA	Pm-144	0.022	0.0371	0.0659	
SP424-13	Tier II	08/09/2011	DC	SA	Pm-146	0.0245	0.0457	0.0786	
SP424-13	Tier II	08/09/2011	DC	SA	Ru-106	0.0986	0.326	0.569	
SP424-13	Tier II	08/09/2011	DC	SA	Sb-124	-0.0174	0.0865	0.134	
SP424-13	Tier II	08/09/2011	DC	SA	Sb-125	-0.0238	0.0992	0.16	
SP424-13	Tier II	08/09/2011	DC	SA	Sn-113	0.00818	0.0472	0.0795	
SP424-13	Tier II	08/09/2011	DC	SA	Sr-90	0.115	0.295	0.536	
SP424-13	Tier II	08/09/2011	DC	SA	Tc-99	-0.682	1.08	2.05	
SP424-13	Tier II	08/09/2011	DC	SA	Th-234	1.14	1.23	2.16	
SP424-13	Tier II	08/09/2011	DC	SA	U-235	-0.0941	0.213	0.33	
SP424-13	Tier II	08/09/2011	DC	SA	U-238	1.14	1.23	2.16	
SP424-13	Tier II	08/09/2011	DC	SA	Y-88	-0.00615	0.0319	0.0509	
SP424-13	Tier II	08/09/2011	DC	SA	Zn-65	0.0112	0.0936	0.14	
SP424-13	Tier II	08/09/2011	DC	SA	Zr-95	0.00412	0.0844	0.142	
SP514-13	Tier II	08/24/2011	DC	SA	Ag-110m	-0.0168	0.0439	0.0705	
SP514-13	Tier II	08/24/2011	DC	SA	Am-241	0.00401	0.0685	0.0989	
SP514-13	Tier II	08/24/2011	DC	SA	Ba-133	0.0226	0.0532	0.0794	

Table 1
Williams Federal SP 424-13 and SP 514-13 Drill Cuttings Radiological Results

Well Number	Well Type	Sample Date	Medium	Sample Type	Isotope	Activity	Counting Error	Reporting Limit	
SP514-13	Tier II	08/24/2011	DC	SA	Ba-140	0.0497	0.17	0.293	
SP514-13	Tier II	08/24/2011	DC	SA	Be-7	0.0455	0.331	0.568	
SP514-13	Tier II	08/24/2011	DC	SA	Ce-139	-0.0154	0.031	0.0509	
SP514-13	Tier II	08/24/2011	DC	SA	Ce-141	0.00649	0.0523	0.089	
SP514-13	Tier II	08/24/2011	DC	SA	Ce-144	-0.0871	0.202	0.334	
SP514-13	Tier II	08/24/2011	DC	SA	Co-56	-0.00705	0.0407	0.0654	
SP514-13	Tier II	08/24/2011	DC	SA	Co-57	0.00087	0.0253	0.043	
SP514-13	Tier II	08/24/2011	DC	SA	Co-58	-0.00404	0.0457	0.0746	
SP514-13	Tier II	08/24/2011	DC	SA	Co-60	0.0188	0.0482	0.085	
SP514-13	Tier II	08/24/2011	DC	SA	Cr-51	0.113	0.327	0.549	
SP514-13	Tier II	08/24/2011	DC	SA	Cs-134	0.0484	0.0583	0.104	
SP514-13	Tier II	08/24/2011	DC	SA	Cs-136	-0.0462	0.0735	0.115	
SP514-13	Tier II	08/24/2011	DC	SA	Cs-137	0.00488	0.047	0.0792	
SP514-13	Tier II	08/24/2011	DC	SA	Eu-152	0.0466	0.121	0.18	
SP514-13	Tier II	08/24/2011	DC	SA	Eu-154	0.0762	0.155	0.274	
SP514-13	Tier II	08/24/2011	DC	SA	Eu-155	0.0544	0.1	0.175	
SP514-13	Tier II	08/24/2011	DC	SA	Fe-59	-0.086	0.093	0.132	
SP514-13	Tier II	08/24/2011	DC	SA	Hg-203	0.00328	0.0407	0.0674	
SP514-13	Tier II	08/24/2011	DC	SA	Ir-192	0.016	0.0344	0.0584	
SP514-13	Tier II	08/24/2011	DC	SA	Mn-54	0.014	0.0469	0.0795	
SP514-13	Tier II	08/24/2011	DC	SA	Na-22	0.026	0.0541	0.096	
SP514-13	Tier II	08/24/2011	DC	SA	Nb-94	0.0388	0.0484	0.0856	
SP514-13	Tier II	08/24/2011	DC	SA	Nb-95	-0.0248	0.0496	0.0779	

Table 1
Williams Federal SP 424-13 and SP 514-13 Drill Cuttings Radiological Results

Well Number	Well Type	Sample Date	Medium	Sample Type	Parameter	Activity	Counting Error	Reporting Limit	
SP514-13	Tier II	08/24/2011	DC	SA	Nd-147	0.0792	0.321	0.555	
SP514-13	Tier II	08/24/2011	DC	SA	Np-239	-0.346	0.39	0.633	
SP514-13	Tier II	08/24/2011	DC	SA	Pm-144	-0.0403	0.0519	0.0806	
SP514-13	Tier II	08/24/2011	DC	SA	Pm-146	-0.0029	0.0514	0.0871	
SP514-13	Tier II	08/24/2011	DC	SA	Ru-106	-0.115	0.372	0.603	
SP514-13	Tier II	08/24/2011	DC	SA	Sb-124	-0.0523	0.11	0.167	
SP514-13	Tier II	08/24/2011	DC	SA	Sb-125	0.0201	0.109	0.179	
SP514-13	Tier II	08/24/2011	DC	SA	Sn-113	-0.0396	0.0515	0.0779	
SP514-13	Tier II	08/24/2011	DC	SA	Sr-90	-0.439	0.488	1.02	
SP514-13	Tier II	08/24/2011	DC	SA	Tc-99	-0.217	1.18	2.08	
SP514-13	Tier II	08/24/2011	DC	SA	U-235	0.0782	0.217	0.372	
SP514-13	Tier II	08/24/2011	DC	SA	Y-88	-0.0297	0.0411	0.053	
SP514-13	Tier II	08/24/2011	DC	SA	Zn-65	0.0706	0.106	0.173	
SP514-13	Tier II	08/24/2011	DC	SA	Zr-95	-0.0205	0.0823	0.133	

Notes:

DC = drill cuttings

SA = primary sample

pCi/g = picoCuries per gram

U = analyte was analyzed for but was not detected above the reporting activity (i.e., minimum detectable activity)

UJ = the analyte was analyzed for but was not detected above the minimum detectable activity; the reported analytical result is an estimate

J = The analyte was detected below the method quantitation limit; the reported analytical result is an estimate

D-I = the result was qualified as estimated because the duplicate error ratio criterion was not met; the result has an indeterminant bias

WILLIAMS – RULISON AREA
DATA REVIEW SUMMARY

Data Package Numbers: GEL 283742
Sample-specific Parameter Review? Yes
Data Reviewer: Liz Best
Peer Reviewer: Sheri Fling

Sampling Event: August 9, 2011
Laboratory Performance Parameters? No
Date Completed: 09/01/2011
Date Completed: 09/02/2011

The table below summarizes the results presented in this data package.

Field ID	Sample Type	Lab ID	Matrix	Analyses			
				Gross Alpha/Beta	Gamma Spectroscopy	Technetium-99	Strontium-90
W424-13-DC-CPTF	SA	283742001	S	X ^m	X	X ^m	X ^m

Matrix: S - Soil
QC Type: SA - Sample
--- = Not analyzed for this parameter.

X^m - Matrix Spike (MS) and/ or Matrix Spike Duplicate (MSD)
ID - Identification

The data review was conducted in accordance with the Rulison Sampling and Analysis Plan for Operational and Environmental Radiological Monitoring within a Three-Mile Radius of Project Rulison, Revision 3, July 31, 2010.

General Overall Assessment:

Data are usable without qualification.

X

Data are usable with qualification; some data were qualified as unusable (noted below).

Case Narrative Summary: Any of the issues noted in the laboratory case narrative potentially affecting data quality are addressed in the appropriate sections in the following table.

Review Parameter	Criteria Met?	Comments
Sample-specific Parameters	Complies with "Yes", "No", or "Not Applicable" Not	For each "No" response, list what was out, associated acceptance limits, all qualified data, and bias direction or reference associated table with pertinent details.
Chain of Custody (COC) & Sample Receipt	Yes	The sample was received intact. The cooler temperature was 5.0 degrees Celsius (°C) upon arrival at the laboratory meeting the criterion of ≤6 °C.
Holding Times	Yes	All holding times were met.
Method Blanks	Yes	No target analytes were reported as detected within the associated method blanks.

Review Parameter	Criteria Met?	Comments
Matrix Quality Control <ul style="list-style-type: none">Matrix Spike/ Matrix Spike Duplicate (MS/MSD) W424-13-DC-CPTF (Gross Alpha, Gross Beta)Matrix Spike (MS) W424-13-DC-CPTF (Strontium-90, Technetium-99)Laboratory Duplicate (LD) W424-13-DC-CPTF (Gamma Spec, Gross Alpha, Gross Beta, Strontium-90, Technetium-99)	No	<p>The recoveries for the MS and/ or MSD were within the Quality Assurance Project Plan (QAPP) acceptance limits of 70-130% for soils. Data qualification was not necessary.</p> <p>The agreement between parent sample results and the laboratory duplicate (LD) sample results and/or the matrix spike results and the matrix spike duplicate results was evaluated. With the exception listed in Table 1 below, the duplicate error ratios (DERs) met the QC criterion.</p>
Method Quality Control <ul style="list-style-type: none">Implied Detection LimitsSample Specific Chemical Recovery (Chemical Yield)Laboratory Control Sample	Yes	<p>Implied Detection Limits</p> <p>No values for radionuclides were reported as detected with associated uncertainties greater than the reported result.</p> <p>Sample Specific Chemical Recovery</p> <p>The sample specific recoveries were within the QAPP acceptance limits of 50-120% for the applicable methods. Data qualification was not required.</p> <p>Laboratory Control Sample (LCS)</p> <p>The LCS recoveries were within the QAPP acceptance limits of 70-130% for soils. Data qualification was not required.</p>
Field Quality Control <ul style="list-style-type: none">Field Duplicate N/ARinsate Blank N/A	N/A	Field duplicates were not collected for this event. Field duplicates were collected during separate events and reported under different covers to meet project QC frequency requirements. As dedicated equipment was used to collect the sample, a rinsate blank was not necessary.
Maximum Detected Concentrations (MDCs) Met?	Yes	
Total Uncertainty	Yes	The total uncertainty for gross alpha and gross beta met the QAPP acceptance criterion of $\leq 50\%$. Therefore, data qualification on the basis of total uncertainty was not necessary. As the strontium-90 and technetium-99 parent sample results were reported as not detected, the total uncertainty was not determined for these parameters.
All Data Usable?	No	<p>Unusable Data</p> <p>With the exception noted below, all data met criteria for the field samples and were usable as qualified.</p> <p>Gamma Spectroscopy</p> <p>Identification of the following isotopes was rejected by the laboratory due to low abundance, high counting uncertainty, high peak-width, or no valid peak and the identification was also rejected during data validation:</p> <p>W424-13-DC-CPTF</p> <ul style="list-style-type: none">Bismuth-212Krypton-85
Package Completeness	Yes	Analytical data package was complete.
Other Parameters	Yes	

°C - Degrees Celsius

COC - Chain of Custody

LCS - Laboratory Control Sample

MDCs - Maximum Detected Concentrations

MS/MSD - Matrix spike/ matrix spike duplicate

\leq - Less Than or Equal to

DER - Duplicate Error Ratio

LD - Laboratory Duplicate

MS - Matrix Spike

N/A - Not Applicable

% - Percent

Table 1: DER Outliers and Resultant Data Qualification

Sample	Analyte	DER	Qualification
W424-13-DC-CPTF	Cesium-137	1.8	The DER between the parent sample results and laboratory duplicate sample results for listed analytes exceeded the criterion of ≤ 1.0 . The listed analytical results for sample W424-13-DC-CPTF were qualified as estimated (J/ UJ D-I).
	Thorium-234	1.1	
	Uranium-238	1.1	

DER – Duplicate Error Ratio J/ UJ – Estimated D – Duplicate precision criteria not met. I – Indeterminate Bias

Certificate of Analysis

Report Date: August 30, 2011

Company : URS Corporation
Address : 8181 E. Tufts Avenue
Denver, Colorado 80237
Contact: Ms. Sheri O'Connor
Project: Williams 2009 - Vendor ID 1168722

Client Sample ID: W424-13-DC-CPTF
Sample ID: 283742001
Matrix: Soil
Collect Date: 09-AUG-11 09:45
Receive Date: 10-AUG-11
Collector: Client
Project: URSC01104
Client ID: URSC011

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid (Standard List) "Dry Weight Corrected"												
Actinium-228		1.07	+/-0.312	0.235		pCi/g						
Americium-241	U	0.0955	+/-0.128	0.228		pCi/g						
Antimony-124	U	-0.0174	+/-0.0865	0.134		pCi/g						
Antimony-125	U	-0.0238	+/-0.0992	0.160		pCi/g						
Barium-133	U	0.00467	+/-0.0455	0.0676		pCi/g						
Barium-140	U	-0.0311	+/-0.297	0.475		pCi/g						
Beryllium-7	U	0.274	+/-0.348	0.610		pCi/g						
Bismuth-212	U	0.00	+/-0.068	1.24		pCi/g						
Bismuth-214		0.801	+/-0.184	0.122		pCi/g						
Cerium-139	U	-0.0173	+/-0.0304	0.0477		pCi/g						
Cerium-141	U	-0.00178	+/-0.0622	0.102		pCi/g						
Cerium-144	U	0.108	+/-0.181	0.309		pCi/g						
Cesium-134	U	0.0587	+/-0.0478	0.0893		pCi/g						
Cesium-136	U	-0.0764	+/-0.124	0.184		pCi/g						
Cesium-137	U	0.0656	+/-0.0424	0.0794	0.100	pCi/g						
Chromium-51	U	-0.264	+/-0.386	0.615		pCi/g						
Cobalt-56	U	-0.0303	+/-0.0439	0.0665		pCi/g						
Cobalt-57	U	0.0183	+/-0.0236	0.0409		pCi/g						
Cobalt-58	U	0.00332	+/-0.0403	0.0676		pCi/g						
Cobalt-60	U	0.00685	+/-0.0351	0.0606		pCi/g						
Europium-152	U	-0.0185	+/-0.117	0.170		pCi/g						
Europium-154	U	0.0454	+/-0.138	0.240		pCi/g						
Europium-155	U	0.0648	+/-0.0896	0.156		pCi/g						
Iridium-192	U	0.0374	+/-0.0372	0.0667		pCi/g						
Iron-59	U	0.0426	+/-0.0835	0.152		pCi/g						
Krypton-85	U	0.00	+/-0.56	14.6		pCi/g						
Lead-210	U	3.42	+/-3.44	6.05		pCi/g						
Lead-212		0.943	+/-0.144	0.0994		pCi/g						
Lead-214		0.952	+/-0.194	0.127		pCi/g						
Manganese-54	U	-0.00783	+/-0.0432	0.0703		pCi/g						
Mercury-203	U	0.0594	+/-0.0587	0.0598		pCi/g						
Neodymium-147	U	0.0128	+/-0.553	0.900		pCi/g						
Neptunium-239	U	-0.12	+/-0.364	0.593		pCi/g						
Niobium-94	U	-0.0196	+/-0.0326	0.0511		pCi/g						
Niobium-95	U	-0.0327	+/-0.0494	0.0763		pCi/g						
Potassium-40		13.2	+/-1.95	0.530		pCi/g						
Promethium-144	U	0.022	+/-0.0371	0.0659		pCi/g						
Promethium-146	U	0.0245	+/-0.0457	0.0786		pCi/g						

EB 09/01/11

Certificate of Analysis

Report Date: August 30, 2011

Company : URS Corporation
Address : 8181 E. Tufts Avenue

Denver, Colorado 80237
Contact: Ms. Sheri O'Connor
Project: Williams 2009 - Vendor ID 1168722

Client Sample ID: W424-13-DC-CPTF
Sample ID: 283742001

Project: URSC01104
Client ID: URSC011

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid (Standard List) "Dry Weight Corrected"												
Radium-228		1.07	+/-0.312	0.235		pCi/g						
Ruthenium-106	U	0.0986	+/-0.326	0.569		pCi/g						
Silver-110m	U	-0.00435	+/-0.0372	0.0622		pCi/g						
Sodium-22	U	0.0147	+/-0.0485	0.0843		pCi/g						
Thallium-208		0.297	+/-0.0723	0.0589		pCi/g						
Thorium-230		0.801	+/-0.179	0.122		pCi/g						
Thorium-234	UJ D-I	1.14	+/-1.23	2.16		pCi/g						
Tin-113	U	0.00818	+/-0.0472	0.0795		pCi/g						
Uranium-235	U	-0.0941	+/-0.213	0.330		pCi/g						
Uranium-238	UJ D-I	1.14	+/-1.23	2.16		pCi/g						
Yttrium-88	U	-0.00615	+/-0.0319	0.0509		pCi/g						
Zinc-65	U	0.0112	+/-0.0936	0.140		pCi/g						
Zirconium-95	U	0.00412	+/-0.0844	0.142		pCi/g						
Rad Gas Flow Proportional Counting												
GFPC, Gross A/B, solid "Dry Weight Corrected"												
Alpha		15.7	+/-5.57	3.27	4.00	pCi/g		CAS2	08/27/11	1610	1130956	2
Beta		20.8	+/-5.05	6.01	10.0	pCi/g						
GFPC, Sr90, solid "Dry Weight Corrected"												
Strontium-90	U	0.115	+/-0.295	0.536	2.00	pCi/g		SYS1	08/22/11	1731	1130958	3
Rad Liquid Scintillation Analysis												
Liquid Scint Tc99, Solid "As Received"												
Technetium-99	U	-0.682	+/-1.08	2.05	5.00	pCi/g		TYJ1	08/16/11	1739	1131092	4
The following Prep Methods were performed:												
Method	Description				Analyst	Date	Time	Prep Batch				
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021				CXC1	08/11/11	1241	1130851				
The following Analytical Methods were performed:												
Method	Description						Analyst Comments					
1	DOE HASL 300, 4.5.2.3/Ga-01-R											
2	EPA 900.0/SW846 9310/SM 7110B Modified											
3	EPA 905.0 Modified											
4	DOE EML HASL-300, Tc-02-RC Modified											
Surrogate/Tracer Recovery		Test			Result	Nominal	Recovery%	Acceptable Limits				
Strontium Carrier		GFPC, Sr90, solid "Dry Weight Corrected"					78.5	(25%-125%)				
Technetium-99m Tracer		Liquid Scint Tc99, Solid "As Received"					93.0	(15%-125%)				

EB 09/01/11

WILLIAMS – RULISON AREA
DATA REVIEW SUMMARY

Data Package Number: GEL 284732
Sample-specific Parameter Review? Yes
Data Reviewer: Liz Best
Peer Reviewer: Sheri Fling

Sampling Event: August 24, 2011
Laboratory Performance Parameters? No
Date Completed: 09/06/2011
Date Completed: 09/07/2011

The table below summarizes the results presented in this data package.

Field ID	Sample Type	Lab ID	Matrix	Analyses			
				Gross Alpha/ Beta	Gamma Spectroscopy	Technetium-99	Strontium-90
W514-13-DC-CPTF	SA	284732001	S	X ^m	X	X ^m	X ^m

Matrix: S = Soil QC Type: SA = Sample
X^m= Matrix Spike (MS) and/or Matrix Spike Duplicate (MSD).
-- = Not analyzed for this parameter.

The data review was conducted in accordance with the Rulison Sampling and Analysis Plan for Operational and Environmental Radiological Monitoring within a Three-Mile Radius of Project Rulison, Revision 3, July 31, 2010.

General Overall Assessment:

Data are usable without qualification.

X

 Data are usable with qualification (noted below).

Case Narrative Summary: Except as noted below, any of the issues noted in the laboratory case narrative potentially affecting data quality are addressed in the appropriate sections in the following table.

Review Parameter	Criteria Met?	Comments
Sample-specific Parameters	Complies with "Yes", "No", or "Not Applicable" (N/A)	For each "No" response, list what was out, associated acceptance limits, all qualified data, and bias direction or reference associated table with pertinent details.
COC & Sample Receipt	Yes	The sample was received intact. The cooler temperature was 3.0 degrees Celsius (°C) upon arrival at the laboratory below the criterion of ≤6 °C.
Holding Times	Yes	All holding times were met.
Method Blanks	Yes	No target analytes were reported as detected within the associated method blanks.

Review Parameter	Criteria Met?	Comments
Matrix QC <ul style="list-style-type: none">MS W514-13-DC-CPTF (Strontium-90, Technetium-99)MS/MSD W514-13-DC-CPTF (Gross Alpha/ Beta)LD W514-13-DC-CPTF (Gamma Spec, Strontium-90, Gross Alpha/ Beta, Technetium-99)	No	<p>The recoveries for the matrix spikes (MS) and matrix spike duplicates (MSD) were within the QAPP acceptance limits of 70-130%. Data qualification was not necessary.</p> <p>The agreement between parent sample results and the lab duplicate sample results and/or the matrix spike result and the matrix spike duplicate result was evaluated. With the exceptions listed in Table 1, the duplicate error ratio (DER) for the laboratory duplicate pairs met the QC criteria of ≤ 1.</p>
Method QC <ul style="list-style-type: none">Implied Detection LimitsSample Specific Chemical Recovery (Chemical Yield)Laboratory Control Sample	Yes	<p>Implied Detection Limits</p> <p>No values for radionuclides were reported as detected with associated uncertainties greater than the reported result.</p> <p>Chemical Yield</p> <p>The sample specific recoveries were within the QAPP acceptance limits of 50-120% for the applicable methods. Data qualification was not necessary.</p> <p>Laboratory Control Sample</p> <p>The LCS recoveries were within the QAPP acceptance limits 70-130%. Data qualification was not necessary.</p>
Field QC <ul style="list-style-type: none">Field Duplicate N/ARinsate Blank N/A	N/A	Field duplicates were not collected for this event. Field duplicates were collected during separate events and reported under different covers to meet project QC frequency requirements. As dedicated equipment was used to collect the sample, a rinsate blank was not necessary.
Maximum Detected Concentrations (MDCs) met?	Yes	
Total Uncertainty	Yes	The total uncertainty for gross alpha and gross beta met the QAPP acceptance criterion of $\leq 50\%$. Therefore, data qualification on the basis of total uncertainty was not necessary. As the strontium-90 and technetium-99 parent sample results were reported as not detected, the total uncertainty was not determined for these parameters.
Unusable Data	No	<p>Unusable Data</p> <p>With the exceptions noted below, all data met criteria for the field samples and were usable as qualified.</p> <p>Gamma Spectroscopy</p> <p>Identification of the following isotopes was rejected by the laboratory due to low abundance, high counting uncertainty, high peak-width, or no valid peak and the identification was also rejected during data validation:</p> <p>W514-13-DC-CPTF</p> <ul style="list-style-type: none">Bismuth-212Krypton-85
Package Completeness	Yes	Analytical data packages were complete.
Other Parameters	Yes	

\leq - Less Than

DER - Duplicate error ratio

MDC - Maximum Detected Con centration

MS/MSD - Matrix Spike/ Matrix Spike Duplicate

$^{\circ}\text{C}$ - Degrees Celsius

LCS - Laboratory Control Sample

MS - Matrix Spike

QAPP - Quality Assurance Project Plan

COC - Chain of Custody

QC - Quality Control

Table 1: DER Outliers and Resultant Data Qualification

Sample	Analyte	DER	Qualification
W514-13-DC-CPTF	Gross Beta	1.5	The DER between the matrix spike sample and matrix spike duplicate sample for gross beta exceeded the criterion of ≤ 1.0 . Therefore, the gross beta result for sample W514-13-DC-CPTF was qualified as estimated (J D-I).
	Zinc-65	2.4	The DER between the parent sample and laboratory duplicate sample for zinc-65 exceeded the criterion of ≤ 1.0 . Therefore, the zinc-65 result for sample W514-13-DC-CPTF was qualified as estimated (UJ D-I).

DER – Duplicate Error Ratio J/UJ – Estimated D – Duplicate precision criteria not met. I – Indeterminate Bias

Certificate of Analysis

Report Date: August 31, 2011

Company : URS Corporation

Address : 8181 E. Tufts Avenue

Denver, Colorado 80237

Contact: Ms. Sheri O'Connor

Project: Williams 2009 - Vendor ID 1168722

Client Sample ID: W514-13-DC-CPTF

Sample ID: 284732001

Matrix: Soil

Collect Date: 24-AUG-11 09:45

Receive Date: 25-AUG-11

Collector: Client

Project: URSC01104

Client ID: URSC011

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gammascpec, Gamma, Solid (Standard List) "Dry Weight Corrected"												
Actinium-228		1.12	+/-0.414	0.293		pCi/g						
Americium-241	U	0.00401	+/-0.0685	0.0989		pCi/g						
Antimony-124	U	-0.0523	+/-0.110	0.167		pCi/g						
Antimony-125	U	0.0201	+/-0.109	0.179		pCi/g						
Barium-133	U	0.0226	+/-0.0532	0.0794		pCi/g						
Barium-140	U	0.0497	+/-0.170	0.293		pCi/g						
Beryllium-7	U	0.0455	+/-0.331	0.568		pCi/g						
Bismuth-212 R	U	0.00	+/-0.951	1.56		pCi/g						
Bismuth-214		0.802	+/-0.205	0.169		pCi/g						
Cerium-139	U	-0.0154	+/-0.031	0.0509		pCi/g						
Cerium-141	U	0.00649	+/-0.0523	0.089		pCi/g						
Cerium-144	U	-0.0871	+/-0.202	0.334		pCi/g						
Cesium-134	U	0.0484	+/-0.0583	0.104		pCi/g						
Cesium-136	U	-0.0462	+/-0.0735	0.115		pCi/g						
Cesium-137	U	0.00488	+/-0.047	0.0792	0.100	pCi/g						
Chromium-51	U	0.113	+/-0.327	0.549		pCi/g						
Cobalt-56	U	-0.00705	+/-0.0407	0.0654		pCi/g						
Cobalt-57	U	0.00087	+/-0.0253	0.043		pCi/g						
Cobalt-58	U	-0.00404	+/-0.0457	0.0746		pCi/g						
Cobalt-60	U	0.0188	+/-0.0482	0.085		pCi/g						
Europium-152	U	0.0466	+/-0.121	0.180		pCi/g						
Europium-154	U	0.0762	+/-0.155	0.274		pCi/g						
Europium-155	U	0.0544	+/-0.100	0.175		pCi/g						
Iridium-192	U	0.016	+/-0.0344	0.0584		pCi/g						
Iron-59	U	-0.086	+/-0.093	0.132		pCi/g						
Krypton-85 R	U	0.00	+/-9.43	17.9		pCi/g						
Lead-210		0.971	+/-0.751	0.838		pCi/g						
Lead-212		1.20	+/-0.182	0.103		pCi/g						
Lead-214		1.01	+/-0.198	0.146		pCi/g						
Manganese-54	U	0.014	+/-0.0469	0.0795		pCi/g						
Mercury-203	U	0.00328	+/-0.0407	0.0674		pCi/g						
Neodymium-147	U	0.0792	+/-0.321	0.555		pCi/g						
Neptunium-239	U	-0.346	+/-0.390	0.633		pCi/g						
Niobium-94	U	0.0388	+/-0.0484	0.0856		pCi/g						
Niobium-95	U	-0.0248	+/-0.0496	0.0779		pCi/g						
Potassium-40		15.7	+/-2.10	0.666		pCi/g						
Promethium-144	U	-0.0403	+/-0.0519	0.0806		pCi/g						
Promethium-146	U	-0.0029	+/-0.0514	0.0871		pCi/g						

EB 09/06/11

Certificate of Analysis

Report Date: August 31, 2011

Company :
Address :

Contact:
Project:

URS Corporation
8181 E. Tufts Avenue

Denver, Colorado 80237
Ms. Sheri O'Connor
Williams 2009 - Vendor ID 1168722

Client Sample ID:
Sample ID:

W514-13-DC-CPTF
284732001

Project:
Client ID:

URSC01104
URSC011

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid (Standard List) "Dry Weight Corrected"												
Radium-228		1.12	+/-0.414	0.293		pCi/g						
Ruthenium-106	U	-0.115	+/-0.372	0.603		pCi/g						
Silver-110m	U	-0.0168	+/-0.0439	0.0705		pCi/g						
Sodium-22	U	0.026	+/-0.0541	0.096		pCi/g						
Thallium-208		0.367	+/-0.0914	0.0648		pCi/g						
Thorium-230		0.802	+/-0.201	0.169		pCi/g						
Thorium-234		1.56	+/-0.896	0.978		pCi/g						
Tin-113	U	-0.0396	+/-0.0515	0.0779		pCi/g						
Uranium-235	U	0.0782	+/-0.217	0.372		pCi/g						
Uranium-238		1.56	+/-0.896	0.978		pCi/g						
Yttrium-88	U	-0.0297	+/-0.0411	0.053		pCi/g						
Zinc-65 U D-I	U	0.0706	+/-0.106	0.173		pCi/g						
Zirconium-95	U	-0.0205	+/-0.0823	0.133		pCi/g						
Rad Gas Flow Proportional Counting												
GFPC, Gross A/B, solid "Dry Weight Corrected"												
Alpha		16.3	+/-5.57	3.67	4.00	pCi/g		DXF3	08/31/11	0645	1136480	2
Beta U D-I		25.3	+/-4.59	3.75	10.0	pCi/g						
GFPC, Sr90, solid "Dry Weight Corrected"												
Strontium-90	U	-0.439	+/-0.488	1.02	2.00	pCi/g		SYS1	08/29/11	1752	1136476	3
Rad Liquid Scintillation Analysis												
Liquid Scint Tc99, Solid "As Received"												
Technetium-99	U	-0.217	+/-1.18	2.08	5.00	pCi/g		TYJ1	08/30/11	0811	1136097	4
The following Prep Methods were performed:												
Method	Description				Analyst	Date	Time	Prep Batch				
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021				CXCI	08/25/11	1807	1136369				
The following Analytical Methods were performed:												
Method	Description					Analyst Comments						
1	DOE HASL 300, 4.5.2.3/Ga-01-R											
2	EPA 900.0/SW846 9310/SM 7110B Modified											
3	EPA 905.0 Modified											
4	DOE EML HASL-300, Tc-02-RC Modified											
Surrogate/Tracer Recovery		Test			Result	Nominal	Recovery%		Acceptable Limits			
Strontium Carrier		GFPC, Sr90, solid "Dry Weight Corrected"					103		(25%-125%)			
Technetium-99m Tracer		Liquid Scint Tc99, Solid "As Received"					92.4		(15%-125%)			

09/06/11