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SWD-1629 (WDW-2)

2016

Susana Martinez Governor

David Martin Cabinet Secretary

Tony Delfin Deputy Cabinet Secretary David R. Catanach, Division Director Oil Conservation Division



Administrative Order SWD-1629 June 1, 2016

ADMINISTRATIVE ORDER OF THE OIL CONSERVATION DIVISION

Pursuant to the provisions of Division rule 19.15.26.8(B) NMAC, Western Refining Southwest, Inc. (the "operator") seeks an administrative order for its Waste Disposal Well No.2 with a surface location 2028 feet from the North line and 111 feet from the East line, Unit letter H of Section 27, Township 29 North, Range 11 West, NMPM, San Juan County, New Mexico, for the purpose of produced and other associated water disposal at the Bloomfield Terminal facility. This administrative order is being issued concurrently with the Class I (Non-hazardous) Well Discharge Permit No. UICI-011.

THE DIVISION DIRECTOR FINDS THAT:

The application has been duly filed under the provisions of Division Rule 19.15.26.8(B) NMAC and satisfactory information has been provided that affected parties as defined in said rule have been notified and no objection was received within the prescribed waiting period. The applicant has presented satisfactory evidence that all requirements prescribed in Rule 19.15.26.8 NMAC have been met and the operator is in compliance with Rule 19.15.5.9 NMAC with financial assurance as provided under terms of the Class I (Non-hazardous) Well Discharge Permit No. UICI-011.

IT IS THEREFORE ORDERED THAT:

The applicant, Western Refining Southwest, Inc. (OGRID 267595), is hereby authorized to utilize its Waste Disposal Well No. 2 (API 30-045-35747) with a surface location 2028 feet from the North line and 111 feet from the East line, Unit letter H of Section 27, Township 29 North, Range 11 West, NMPM, San Juan County, for disposal of oil field produced water in the Entrada formation through perforations from 7314 feet below surface to 7483 feet below surface. Injection will occur through internally-coated, 4½-inch or smaller tubing and a packer set within 100 feet of the uppermost perforation.

IT IS FURTHER ORDERED THAT:

The operator shall take all steps necessary to ensure that the disposed water enters only the approved disposal interval and is not permitted to escape to other formations or onto the surface. This includes the completion and construction of the well as proposed in the application and, if necessary, as modified by the District Supervisor.

As a requirement of this order, the operator is responsible for complying with terms of the Application for Permit to Drill, Re-enter, Deepen, Plugback or Add a Zone (including Conditions of Approval) approved by Division's District III office and the terms and provisions of Division's Class I (Non-hazardous) Well Discharge Permit No. UICI-011.

After installing tubing, the casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge or an approved leak detection device in order to determine leakage in the casing, tubing, or packer. The casing shall be pressure tested from the surface to the packer setting depth to assure casing integrity.

The well shall pass an initial mechanical integrity test ("MIT") prior to initially commencing disposal and prior to resuming disposal each time the disposal packer is unseated. All MIT procedures and schedules shall follow the requirements in Division Rule 19.15.26.11(A) NMAC. The Division Director retains the right to require at any time wireline verification of completion and packer setting depths in this well.

The wellhead injection pressure on the well shall be limited to **no more than 1463 psi**. In addition, the disposal well or system shall be equipped with a pressure limiting device in workable condition which shall, at all times, limit surface tubing pressure to the maximum allowable pressure for this well.

The Director of the Division may authorize an increase in tubing pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the disposed fluid from the target formation. Such proper showing shall be demonstrated by sufficient evidence including but not limited to an acceptable Step-Rate Test.

The operator shall notify the supervisor of the Division's District III office of the date and time of the installation of disposal equipment and of any MIT so that the same may be inspected and witnessed. The operator shall provide written notice of the date of commencement of disposal to the Division's District III office. The operator shall submit monthly reports of the disposal operations on Division Form C-115, in accordance with Division Rules 19.15.26.13 and 19.15.7.24 NMAC.

Without limitation on the duties of the operator as provided in Division Rules 19.15.29 and 19.15.30 NMAC, or otherwise, the operator shall immediately notify the Division's District III office of any failure of the tubing, casing or packer in the well, or of any leakage or release of water, oil or gas from around any produced or plugged and abandoned well in the area, and shall take such measures as may be timely and necessary to correct such failure or leakage.

The injection authority granted under this order is not transferable except upon Division approval. The Division may require the operator to demonstrate mechanical integrity of any injection well that will be transferred prior to approving transfer of authority to inject.

The Division may revoke this injection order after notice and hearing if the operator is in violation of Rule 19.15.5.9 NMAC.

Administrative Order SWD-1629 Western Refining Southwest, Inc. June 1, 2016 Page 3 of 3

The disposal authority granted herein shall terminate two (2) years after the effective date of this Order if the operator has not commenced injection operations into the subject well. One year after the last date of reported disposal into this well, the Division shall consider the well abandoned, and the authority to dispose will terminate *ipso facto*. The Division, upon written request mailed by the operator prior to the termination date, may grant an extension thereof for good cause.

Compliance with this Order does not relieve the operator of the obligation to comply with other applicable federal, state or local laws or rules, or to exercise due care for the protection of fresh water, public health and safety and the environment.

Jurisdiction is retained by the Division for the entry of such further orders as may be necessary for the prevention of waste and/or protection of correlative rights or upon failure of the operator to conduct operations (1) to protect fresh or protectable waters or (2) consistent with the requirements in this order, whereupon the Division may, after notice and hearing, terminate the disposal authority granted herein.

DAVID R. CATANACH Director

DRC/prg

cc: Oil Conservation Division – Aztec District Office

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[3] SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED ABOVE.

[4] **CERTIFICATION:** I hereby certify that the information submitted with this application for administrative approval is **accurate** and **complete** to the best of my knowledge. I also understand that **no action** will be taken on this application until the required information and notifications are submitted to the Division.

Note: Statement must be completed by an individual with managerial and/or supervisory capacity.

Bruce D. Davis	Bruce D. P-	Director	3-2-16
Print or Type Name	Signature	Title	Date
		e-mail Address	is @WNR. Com

STATE OF NEW MEXICO ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, New Mexico 87505

	APPLICATION FOR AUTHORIZATION TO INJECT
1.	PURPOSE: Secondary Recovery Pressure Maintenance X Disposal Storage Application qualifies for administrative approval? Yes No
11.	OPERATOR: Western Refining Southwest, Ing [248440] - Western Refining Sauthwest LP/Transporter
	ADDRESS: #50 County Road 4990 (PO Box 159), Bloomfield, NM 87413
	CONTACT PARTY: <u>Ron Weaver</u> PHONE: <u>505-632-8013</u>
III.	WELL DATA: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.
IV.	Is this an expansion of an existing project?YesNo If yes, give the Division order number authorizing the project:
V.	Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.
VI.	Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.
VII.	Attach data on the proposed operation, including:
	 Proposed average and maximum daily rate and volume of fluids to be injected; Whether the system is open or closed; Proposed average and maximum injection pressure; Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and, If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).
*VⅢ.	Attach appropriate geologic data on the injection zone including appropriate lithologic detail, geologic name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such sources known to be immediately underlying the injection interval.
IX.	Describe the proposed stimulation program, if any.
*X.	Attach appropriate logging and test data on the well. (If well logs have been filed with the Division, they need not be resubmitted).
*XI.	Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.
XII.	Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.
XIII.	Applicants must complete the "Proof of Notice" section on the reverse side of this form.
XIV.	Certification: I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.
	NAME: Bruce D. Davis TITLE: Director
	SIGNATURE: B_DRDATE: 3-2-16
u .	E-MAIL ADDRESS: bruce. davis @ WNR. com

* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstances of the earlier submittal:

III. WELL DATA

- A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:
 - (1) Lease name; Well No.; Location by Section, Township and Range; and footage location within the section.
 - (2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.
 - (3) A description of the tubing to be used including its size, lining material, and setting depth.
 - (4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District Offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

- B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.
 - (1) The name of the injection formation and, if applicable, the field or pool name.
 - (2) The injection interval and whether it is perforated or open-hole.
 - (3) State if the well was drilled for injection or, if not, the original purpose of the well.
 - (4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.
 - (5) Give the depth to and the name of the next higher and next lower oil or gas zone in the area of the well, if any.
- XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

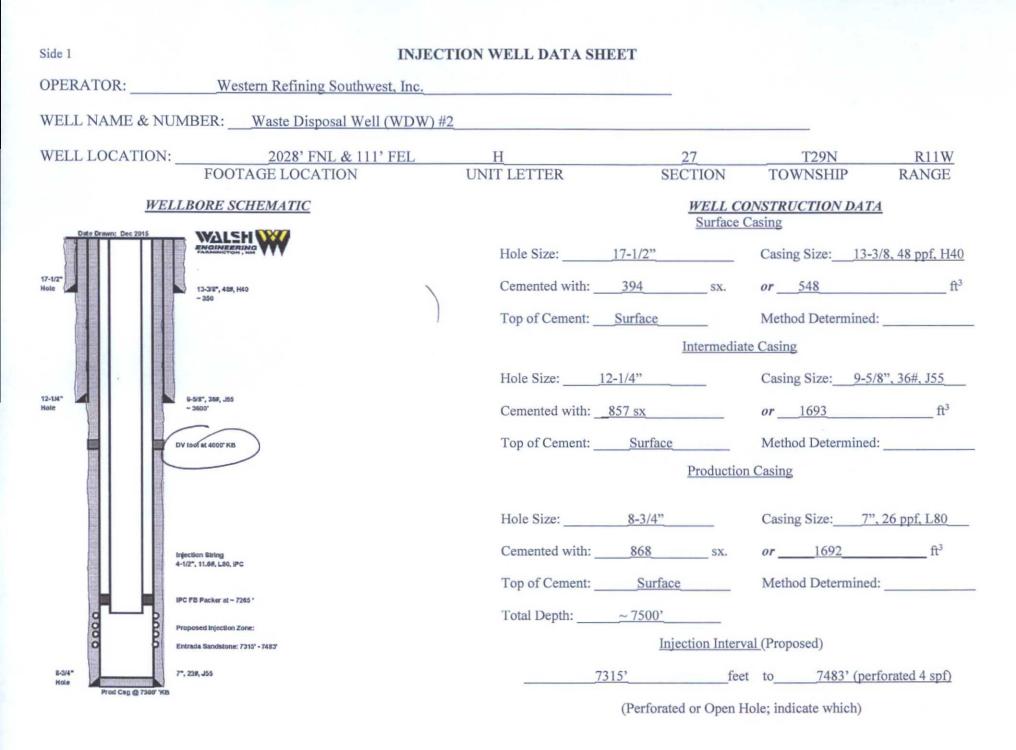
Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

- (1) The name, address, phone number, and contact party for the applicant;
- (2) The intended purpose of the injection well; with the exact location of single wells or the Section, Township, and Range location of multiple wells;
- (3) The formation name and depth with expected maximum injection rates and pressures; and,

(4) A notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505, within 15 days.

NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.



INJECTION WELL DATA SHEET

bing Size: <u>4-1/2", 10.5 ppf</u> Lining Material: <u>Plastic Lined</u>
e of Packer:7" Baker "FAB-1" (or similar model"
ker Setting Depth: <u>~ 7265'</u>
er Type of Tubing/Casing Seal (if applicable): Baker Model "KBH-22" Anchor tubing seal assembly, landed in packer
Additional Data
Is this a new well drilled for injection? <u>X</u> Yes <u>No</u>
If no, for what purpose was the well originally drilled?
Name of the Injection Formation: <u>Entrada</u>
Name of Field or Pool (if applicable):
Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used.
Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area:

Western Refining Southwest, Inc.

Waste Disposal Well (WDW) #2

C-108 Data Sheet

V. Maps identifying all wells within 2 ½ miles of proposed injection well and Area of Review (AOR) of 1mile radius.

The maps are below.

VI. Tabulation of data of all wells of public record within the AOR which penetrate the proposed injection zone.

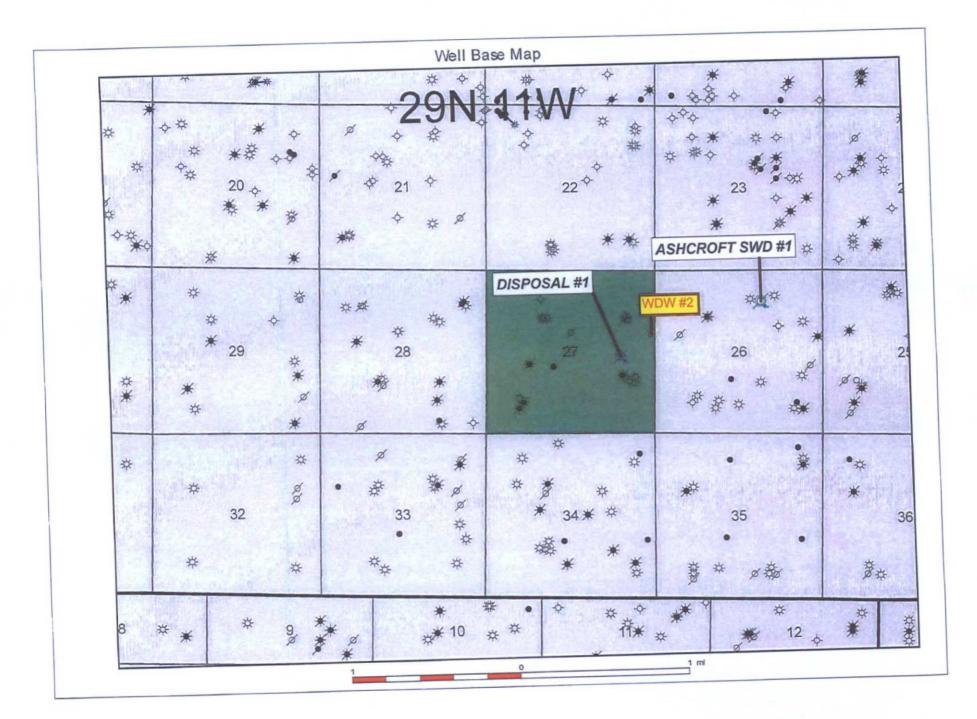
The only well that penetrates the proposed injection zone is the Ashcroft SWD #1 (API# 30-045-30788) located approximately 3/4 miles to the east. The Ashcroft is a SWD well operated by XTO iv Energy Resources and is completed in the Entrada and Bluff formations.

Tabulation of wells within the 1-mile AOR is below.

VII. Operation Data

- A. Average Daily Injection Rate = 3,500 bbls.
 B. Maximum Daily Injection Rate = 8,500 bbls.
- 2. The system is closed (water will be collected onsite as part of the Bloomfield Terminal's process and pumped over to the injection well).
- 3. Proposed pressures
 - A. The average and maximum injection pressures will be determined from a step rate test run after the well is completed. The anticipated injection pressures are ~ 2000 psi.
- 4. The fluid to be disposed in the proposed injection well will be Waste Water Treatment System effluent, Evaporation Ponds contact storm water and Injection Well Stimulation and Maintenance fluids. Table 1 contains information about the injection fluid including source, waste type, frequency and discharge volume. Table 2 contains information about the sources on Waste Water Treatment Plant influent. An Analytical Summary of the fluids disposed in Disposal #1 2014 Annual report is presented in Table 3. This summary best characterizes the fluid to be disposed.

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Western Refining Southwest Inc.

Area of Review 1 mile radius



Enerdeq Browser Date: Jan 29, 2016 Author: JOHN THOMPSON

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0430450773371599 0430450773371599 0430450782571599 0430450783571599 0430450786571200 0430450786571200 0430450790577200	300425077330000 30045077330000 30045078250000 50045078350000 30045078350001 30045078680000	ASHCROFT SWG SULLIVAN GAS COM D DAVIS GAS COM P MANGUM MANGUM	1	XTO ENERGY INCORPORATED		36.69640689	-107.9620229	ARMENTA	SAN JUAN	ACTIVE	GALLUP /SD/ MESAVERDE	006918	7,534	255,800	1,172 6,030	170
0430450782571599 0430450783571599 0430450783571599 0430450786871200 0430450790377200	30045078250000 30045078350000 30045078350001 30045078350001 30045078680000	DAVIS GAS COM P MANGUM MANGUM	1			58.70129355	-207.9580722	SWO	SAN JUAN	ACTIVE	MORROW				4 546 6 260	1 34
0430450786871200 0430450786871200	30045078350501	MANGUM	1	BP AMERICA PRODUCTION COMPANY	29N 11W 268 W NW NE 29N 11W 27TSW NE SE	36.70149705 36.69478221	-107.9598182 -107.9734791		SAN JUAN SAN JUAN	ACTIVE INACTIVE	DAKOTA	022839		2,820,296	4,546 6,260	AL
0430450790377200			14	BURLINGTON RESOURCES O&G CD LP	29N 11W 27L NE NW SW	36.69567609	-107.9834612	BASIN	SAN JUAN	INACTIVE	DAKOTA	007282	15,187	2,646,060	6,350	H
	120048070020000	SULLIVAN	2	HOLCOMB OIL & GAS INCORPORATED	29N 11W 26H NW 5E NE	36.69953096	-107.9541735		SAN JUAN	INACTIVE	FRUITLAND	015829		368,487	716 1,487	
		GARLAND 8	1	SOUTHERN UNION PRODUCTION COMPANY MANANA GAS INCORPORATED		36.69234828 36.70608404	-107.9841029		SAN JUAN	INACTIVE		251550	41.071	355,978	6.176 6.314	
0430450795971200	30045079590000	GRACE PEARCE	1	PICKETT JOHN C	29N 11W 22O NE SW SE	36.70664386	-107.9750193	ATTEC	SAN JUAN	INACTIVE	FRUITLAND	009267	-	804,059	1,620	
			1										45,556			
0430450798571599	30045079850000	PEARCE GAS COM	1	BP AMERICA PRODUCTION COMPANY	29N 11W 23K NE SW	36.70802867	-107.9633365	BASIN	SAN JUAN	INACTIVE	DAKOTA	000949		1,695,598	2,187 6,274	4-
		CALVIN	2	MANANA GAS INCORPORATED	29N 11W 26M SW SW 29N 11W 22N 5E SW	36.6929968 36.70619366			SAN JUAN	ACTIVE	FRUITLAND	006883	25,759	3,848,517 845,491	650 1,440	
		LEA ANN DELO	1	CHAPARRAL OIL & GAS COMPANY	29N 11W 35E NE SW NW	35.68454583	-107.9667053	FULCHER KUTZ	SAN JUAN	INACTIVE.	PICTURED CLIFFS	002529		266,925	1,900	1
0430452173277200	30045217320000	GARLAND 8	10 1R	BURLINGTON RESOURCES D&G CO LP	29N 11W 27M NE SW SW	36.69179563			and the second second	INACTIVE	PICTURED CLIFFS	007039	10	and the second se	853	D
	30045226390000	DELO FARI B SULLIVAN	11	GENERAL MINERALS CORPORATION	29N 11W 26P NW SE SE	36.69189786			and the second second	INACTIVE	FARMINGTON	004502	162		14.4.47	-
		STATE GAS COM BS	1	HOLCOMB OIL & GAS INCORPORATED	29N 11W 23K SW NE SW	36.7079731	-107.9634048	BASIN	SAN JUAN	ACTIVE	FRUITLAND COAL			672,850	2,934 2,954	
0430452355482329	30049235500000	DAVIS GAS COM G	1		25N 11W 23K 5W NE 5W 29N 11W 27I SW NE SE				SAN JUAN		CHACRA		- 309	550,835 337,989	3,826 2,954 747 2,955	-
0430452408271599	30045240820000	PEARCE GAS COM	IE	XTO ENERGY INCORPORATED	29N 11W 23) SE NW SE	35.70815961	-107.9565825	BASIN	SAN JUAN	ACTIVE	DAKOTA	022629	and the second division of the second divisio	distances and the local data in	5,412 6,363	
0430452408371599	30045240830000	DAVIS GAS COM F	1E 1E	ATO ENERGY INCORPORATED	29N 11W 26F NW 5E NW 29N 11W 27H NW 5E NE	36.69993082			SAN JUAN	ACTIVE	DAKOTA	022839			8,033 6,384	
01504574050825739	31045245230000	DAVIS GAS COM P	SE .	NTO ENERGY INCORPORATED	29N 11W 27H NW SENE	50.09983519 36.09183545			SAN JUAN	ACTIVE	CHACKA	023416	-	451,277	2,457 8,38	
0430452457382329	30045245730000	GARLAND	3	SOUTHLAND ROYALTY COMPANY LLC	29N 11W 27M NE SW SW	36.69270239	-107.9844958	OTERO	SAN JUAN	ACTIVE	CHACRA	021914		305,435	1,140 2,905	15-
and the second distance of the second distance in the second distance of the second	30045245740000	SUMMIT	9			the second s					and the second sec		4,630		2,505 6,240	
		CALVIN	16	BURLINGTON RESOURCES O&G CO LP	29N 11W 26PNW SE SE	36.69192559	-107.9551454	BASIN	SAN JUAN	ACTIVE	DAKOTA	006883	2,986		8,346 6,50	
0430452483771599	30045248370000	CONGRESS	48	BURLINGTON RESOURCES O&G CO LP BURUNGTON RESOURCES O&G CO LP	29N 11W 35E NE SW NW 29N 11W 35E NE SW NW	36.6849902	-107.9659406	BASIN	SAN JUAN	ACTIVE	and the second sec	006918	370	160,434	2,336 6,50	//
0430452532971629	30045253290000	DAVIS GAS COM J	1	HOLCOMB OIL & GAS INCORPORATED	29N 11W 26F NW SE NW	36.69991548			SAN JUAN	ACTIVE	FRUITLAND COAL			330,236	27,028	r /
0480452582983829	30045253200000	DAMS GAS COM J	1	XTO ENERGY INCORPORATED	29N 11W 26F NW 5E NW 29N 11W 26F NW 5E NW	36.69991548	~107.9644588	OTENO	SAN JUAN	INALTIVE	CHIACRA	022801	150	181,392	603 4,00	
0430452562102290			2	HOLCOMB OIL & GAS INCORPORATED	29N 11W 26H SE SE NE	36.69824062			SAN JUAN	INACTIVE	GALLUP /SO/	022841	2,426	73,691	657 5,76	Y/
	30045257070000	SUMMIT	15	SOUTHLAND ROYALTY COMPANY LLC	29N 11W 34C NE NE NW	36.68874761	-107.9804042	ARMENTA	SAN JUAN	ACTIVE	GALLUP /SO/	021407	5,765		1,247 6,21	
XXX430452672182329	30045267210000	NANCY HARTMAN MARY JANE	2	MANANA GAS INCORPORATED	29N 11W 22P NW 5E 5E	36.70637919	-107.9723245	OTERO	SAN JUAN	ACTIVE	CHACRA	006264	Con Vera	325,500	1,244 2,83	
0430452736171200	30045273610000	LAUREN KELLY	1	MANANA GAS INCORPORATED	29N 11W 27F NW SE NW	36.69985569	-107.9820557	AZTEC	SAN JUAN	ACTIVE	FRUITLAND	006268		151,744	1,120 1,50	00/
0430452736582329	30045273650000	MARIAN 5	1	MANANA GAS INCORPORATED	29N 11W 27F NW SE NW	36.69966343		OTERO	SAN JUAN	ACTIVE	ENTRADA	006269	1100000	166,541	1,900 2,84	₹¥
and the second se	30045308330001	DAVIS GAS COM F	18	XTO ENERGY INCORPORATED	29N 11W 27! SW NE SE	36.69461272	-107.9721325		SAN JUAN	ACTIVE	GALLUP /SD/	1	3,856	46,691	8 153	
0430453111871629	30045311180000	CALVIN	100	BURUNGTON RESOURCES O&G CO LP		the second se			SAN JUAN SAN JUAN	ACTIVE	FRUITLAND COAL		825	200,914	9,115	D
0430453309371599	30045330930000	CALVIN	1F	BURLINGTON RESOURCES O&G CO LP	29N 11W 26J SW NW SE	36.6942192	-107.9587095	BASIN	SAN JUAN	ACTIVE	DAKOTA	-	2,529		15,362 0,52	-
		JACQUE	2	MANANA GAS INCORPORATED HOLCOMB OIL & GAS INCORPORATED	29N 11W 22N W2 SE SW 29N 11W 27H NW SE NE	36.70572753 36.69957456			SAN JUAN SAN JUAN	ACTIVE	FRUITLAND COAL	-	-	62,853	6,720 1,83 3,225 1,89	
	848450796971200 84045079671200 84045079671200 840450796771200 840450798771200 840450798771200 840450798771200 840450798771200 840450797277200 840452073727200 84045214577202 84045214577202 84045214577202 84045214577202 84045214577202 84045214577202 84045214577202 840452204271237 840452204271239 84045244577202 84045244577202 840452445772129 84045244727159 84045244727159 840452447272159 84045247272159 84045247272159 8404524782239 8404524782239 840452478239 840452478239 840452478239 840452478239 840452478239 840452478239 840452478239 840452478239 840452478239 840452478239 84052478239	830450798971999 30045079850000 830451200371599 30045120030000 830451200371599 30045120030000 830451200371599 30045120030000 83045120371299 30045120030000 84045207527700 3004521369000 84045204572827700 3004521457000 84045214572820 3004521457000 840452213297200 90045223306000 840452214297200 900452233680000 840452214927200 90045233680000 830452214277200 900452353680000 830452214277200 900452353680000 830452214277199 90045240820000 83045240871599 90045240820000 83045240712129 9004524720000 83045247721229 9004524720000 8304524773129 9004524770000 830452574162129 9004524770000 83045257210229 9004524720000 83045257210229 9004524720000 83045257210229 9004524720000 83045257210229 9004524720000 83045257210229 9004524720000 830452527210229	83845995923200 3004807989802000 BRACE FEARCE 830450796071599 30045079610000 HARTIMAN 850450796571209 30045079850000 PEARCE GAS COM 850450796571299 30045079850000 PEARCE GAS COM 850450798571299 30045179850000 CON 850450798571299 3004512080000 CALVIN 850451208727000 30045120890000 CALVIN 850451208727200 300451218570000 DELD 830452145726242 30045214570000 DELD 8304521457263264 30045225350000 EAL MIN 830452145726342647 3004522580000 EAL B SULLIVAN 840845264872631 30045235500001 STATE GAS COM 85 840845264871599 3004524580000 FARLE GAS COM 95 840845264871599 3004524580000 SULLIVAN 6AS COM 9 840845264871599 30045248700000 SULLIVAN 6AS COM 9 8408452648712223 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MAAAAA GAS INCORPORATED 294 11W 22 W 55 W 56.70664789 -1.07.3772788 BAAIN 30345579872037 CONSTITUTANAN 1 BPAAEBICA PROCENTION COMPARY 294 11W 22 W 55 W 56.70664789 -1.07.3851488 BAAIN 3034557937579 CONSTITUTON COMPARY 201 MAAAAA GAS INCORPORATED 294 11W 22 W 55 W 56.70664789 -1.07.385148 BAAIN 3034551203757597 CONSTITUTON COMPARY 211 MAAAAA GAS INCORPORATED 294 11W 26 W 5W 56.70664788 -1.07.385148 BAAIN 3034551203757597 DONSTITUTON COMPARY 211 M 26 W 26 M 26 M 26 M 26 M 26 M 26 M 26</td><td>10045071959 20045071959 20045071950 CONC 1 MANANA GAS INCOMPORTED 291 1129 221 NV 22 PK V 58, 20064458 -007.2011406 AAN AIANA 10045071957 200450719500.00 FAAK ABRENCA STATE CON 1 MANANA GAS INCOMPORTED 291 1129 221 KI 22 PK SK 56, 70064176 -107.972768 AAN AIANA 10045071957 20045071950 CAN ALAMA CON ARTICL 291 1129 221 KK SW 56, 70064268 -407.9785198 AAN AIANA 10045071957 20045071950 CAN ALAMA CAN ALA</td><td>1004/07/1999 1004/07/1999 1004/07/1999 1004/07/1999 1004/07/1999 1001/07/1999<</td><td>Biology 1999 Biology 1999<</td><td>Biologic Market Sound Processes Sound Proc</td><td>BASS/20071019 DOXED COX 1 MAXAWA AG NECONDOCATIO DPN 11192718 SIZ 2001 8 M 4 AUTORE AUTORE <</td><td>BiodSYMPUND DOUGNESSON DOUGNESSON DOUGNESSON DATE <thdate< th=""> DATE <thdate< th=""> <th< td=""><td>Description Description <thdescription< th=""> <thdescription< th=""></thdescription<></thdescription<></td></th<></thdate<></thdate<></td></t<>	30365279400000 COCK 1 MANAWA GS INCORPORTED 29N 11W 22N NS US W 35.70004004 -107.981106 S056579812000 BARKTARS 1 PICKET CHIN C 29N 11W 22N NS US W 35.700040715 S056579812000 PARATUAN 3 COCK RP1. 29N 11W 22N NS US W 35.70004715 S055579812700 S056560805000 PARATUAN STATE COM 3 DP AMERICA ROLL 29N 11W 22N NS US W 35.70002467 S055579812700 S0555080570000 CALVIN 3 BURLINGON RESOLUTES GAD DU P 29N 11W 22N NS US W 35.65308664 107.9833546 S055579812700 S0555000000 CALVIN 2 MANAWA GS INCORPORATED 29N 11W 22N NS US W 36.65445038 107.9845468 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Repetrations - Imile - SWDO

Bloomfield Terminal Western Refining Southwest, Inc. Proposed Waste Disposal Well (WDW) #2 Sources of Injection Fluids Table 1

Waste Water Source	Description	Waste Type	Frequency	Discharge Volume
Waste Water Treatment System Effluent	The waste water treatment system processes waste water from terminal. The system consists of three stages : an API Separator, Benzene Strippers and Aeration Lagoons (aka. Aggressive Biological Treatment). ¹²	Non-Exempt		October to April - 20 to 50 GPM April to October - 50 to 100 GPM
Contact Storm Water - Evaporation Ponds	Precipitation (storm water) that falls into the evaporation ponds is contained and discharged directly to the WDW #2 injection well.	Non-Exempt	Non-Routine	Dependent on Precipitation
Injection Well Stimulation and Maintenance	Fluids produced from the injection well during stimulation and maintenance operations.	Non-Exempt	Non-Routine	Dependent on scope of work

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1. Final waste water treatment consists of Aggressive Biological Treatment (ABT).

2. Process Sewer System conveys waste water from various collection points to the waste water treatment system.

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Bloomfield Terminal Western Refining Southwest, Inc. Proposed Waste Disposal Well (WDW) #2 Waste Water Treatment Plant Influent Table 2

Waste Water Source	Description	Waste Type	Frequency	Discharge Volume
Recovered Ground Water	Ground water remediation efforts includes pump and treat remedies. Hydrocarbon impacted water is recovered from multiple recovery wells and the Hammond Ditch French Drain Recovery System. Recovered water containing trace hydrocarbons is discharged to the process sewer system. ^{1,2}	Non-Exempt	Routine	October to April - 15 to 45 GPM April to October - 30 to 90 GPM
Boiler	Boiler blowdown waste water containing dissolved solids is discharged to the terminal process sewer system.	Non-Exempt	Routine	1,200 gallons per day
Heater Treater at Terminals	Steam is used to separate water from crude oil. Waste water containing trace hydrocarbons and dissolved solids is discharged to process sewer system.	Non-Exempt ³	Routine	150 gallons per day
Boiler Feed Water Treatment System	Raw water is treated by this system to remove impurities before being supplied as feed water to the boiler system. Waste water from water softening units containing dissolved solids is routinely discharged to the process sewer system. ¹	Non-Exempt	Routine	280 gallons per day
Storage Tanks	Crude and product storage tanks are occasionally drained of bottom/decanted water. Waste water containing trace hydrocarbons and dissolved solids is discharged to the process sewer system.	Non-Exempt ³	Non-Routine	Dependent on Crude/Product Quality
Recoverable Material	The recoverable material is processed by the API Separator to recover the oil from water.	Non-Exempt ³	Non-Routine	Dependent of Water Fraction
Process Equipment Cleaning	Wash water used in maintenance of process equipment. Waste water containing trace hydrocarbons and dissolved solids is discharged to the process sewer system.	Non-Exempt	Non-Routine	Dependent on Maintenance Scope and Schedule
Hydrotest Water	Water used for Mechanical Integrity Testing (MIT) of equipment such as Tanks, piping, etc. Waste water containing trace hydrocarbons and dissolved solids is discharged to the process sewer system.	Non-Exempt ³	Non-Routine	Dependent of MIT Scope and Schedule
Contact Storm Water	Storm water exposed to contaminants by contact with process equipment is contained and discharged to the process sewer system. Contact storm water may contain trace hydrocarbons and dissolved solids.	Non-Exempt	Non-Routine	Dependent on Precipitation

1. Process Sewer System conveys waste water from various collection points to the waste water treatment system

2. The River Terrace recovered groundwater is treated using a Granular Activated Carbon (GAC) System . The GAC effluent is recycled in the terminal process water system.

3. Bloomfield Terminal is a transportation facility. The exemption of oil and gas exploration and production wastes does not apply to transportation facilities.

Injection Well 2014 Quarterly Analytical Summary

	Toxicity Characteristics	1st Ouarter	2nd Quarter	3rd Quarter	4th Quarter
Volatile Organic Compounds (ug/L)		1/23/2014		7/28/2014	10/1/2014
1,1,1,2-Tetrachloroethane		< 10	па	< 2,0	< 5.0
1,1,1-Trichloroethane		< 10	na	< 2.0	< 5.0
1,1,2,2-Tetrachloroethane		< 20	па	< 4.0	< 10
1,1,2-Trichloroethane		< 10	па	< 2.0	< 5.0
1,1-Dichloroethane		< 10	na	< 2.0	< 5.0
1,1-Dichloroethene		< 10	па	< 2.0	< 5.0
1,1-Dichloropropene		<10	na na	< 2.0 < 2.0	< 5.0
1,2,3-Trichlorobenzene 1,2,3-Trichloropropane		< 20	na	< 4.0	< 10
1,2,4-Trichlorobenzene		< 10	na	< 2.0	< 5.0
1,2,4-Trimethylbenzene	····	< 10	na	< 2.0	< 5,0
1,2-Dibromo-3-chloropropane		< 20	па	< 4.0	< 10
1,2-Dibromoethane (EDB)		< 10	na	< 2.0	< 5.0
1,2-Dichlorobenzene		< 10	na	< 2.0	< 5.0
1,2-Dichloroethane (EDC)	500	< 10	na	< 2.0	< 5.0
1,2-Dichloropropane		< 10		< 2.0	< 5.0
1,3,5-Trimethylbenzene		< 10	na	< 2.0	< 5.0
1,3-Dichlorobenzene		< 10	па	< 2.0	< 5.0
1,3-Dichloropropane	7600	< 10	na	< 2.0 < 2.0	< 5.0 < 5.0
1,4-Dichlorobenzene 1-Methylnaphthalene	7500	< 40	па	< 8.0	< 20
2,2-Dichloropropane		< 20	na	<4.0	< 10
2-Butanone		200		< 20	< 50
2-Chlorotoluene		< 10	na	< 2.0	< 5.0
2-Hexanone		< 100	na	< 20	< 50
2-Methylnaphthalene		< 40	na	< 8.0	< 20
4-Chlorotoluene		< 10	па	< 2.0	< 5.0
4-Isopropyltoluene		< 10	па	< 2.0	< 5.0
4-Methyl-2-pentanone		< 100	na	< 20	< 50
Acetone		1400	na	85	120
Benzene	500	< 10	па	< 2.0	< 5.0
Bromobenzene	··· {	< 10	<u>na</u>	< 2.0 < 2.0	< 5.0
Bromodichloromethane Bromoform		< 10	na na	< 2.0	< 5.0
Bromomethane		< 30	na	< 6,0	< 15
Carbon disulfide		<100	па	< 20	< 50
Carbon Tetrachloride	500	< 10	na	< 2.0	< 5,0
Chlorobenzene	100000	< 10	na	< 2.0	< 5.0
Chloroethane		< 20	па	< 4.0	< 10
Chloroform	6000	< 10	na	< 2.0	< 5.0
Chloromethane		< 30	па	< 6.0	< 15
cis-1,2-DCE		< 10	na	< 2.0	< 5,0
cis-1,3-Dichloropropene		< 10	na	< 2.0	< 5.0
Dibromochloromethane		< 10	<u>na</u>	< 2.0	< 5.0
Dibromomethane		<10 <10	na	< 2.0	< 5.0
Dichlorodifluoromethane Ethylbenzene	-[< 10	<u>na</u> na	< 2.0 < 2.0	< 5.0
Hexachlorobutadiene	500	< 10	na	< 2.0	< 5.0
Isopropylbenzene		<10	na	< 2.0	< 5.0
Methyl tert-butyl ether (MTBE)		< 10	na	< 2,0	< 5.0
Methylene Chloride		< 30	10.1	< 6 0	< 15
Naphthalenc		< 30	na	< 4.0	< 10
n-Butylbenzene	_	< 10	na	< 6.0	<15
n-Propylbenzene		< 20	na	< 2.0	< 5,0
sec-Butylbenzene		< 10	na	< 2.0	< 5.0
Styrene		< 10	na	< 2.0	< 5.0
tert-Butylbenzene Tetrachloroethene (PCE)		<10 <10	na	< 2.0	< 5.0
Tetrachioroethene (PCE) Toluene	····	<10	<u>na</u>	< 2.0	<u>< 5.0</u> < 5.0
trans-1,2-DCE		<10	na na	< 2.0	< 5.0
trans-1,3-Dichloropropene		< 10	na	< 2.0	< 5.0
Trichloroethene (TCE)		< 10	na	< 2.0	< 5.0
Trichlorofluoromethane		< 10	na	< 2.0	< 5,0
Vinyl chloride	200	< 10	na	< 2.0	< 5.0
Xylenes, Total		< 15	па	< 3.0	< 7.5

Injection Well 2014 Quarterly Analytical Summary

	Toxicity	1st Ouarter	2nd Ouarter	3rd Quarter	4th Quarter
Semi-Volatile Organic Compounds (ug/L)	Characteristics	Ist Quarter	2nd Quarter	310 Quarter	
1,2,4-Trichlorobenzene	I	< 50	na	< 100	< 10
1,2-Dichlorobenzene		< 50	па	< 100	< 10
1,3-Dichlorobenzene		< 50	na	< 100	< 10
1.4-Dichlorobenzene	7500	< 50	na	< 100	< 10
1-Methylnaphthalene		< 50	па	< 100	< 10
2,4,5-Trichlorophenol		< 50	па	< 100	< 10
2,4,6-Trichlorophenol	2000	· < 50	na	< 100	< 10
2,4-Dichlorophenol		< 100	na	< 200	< 20
2,4-Dimethylphenol		< 50	na	<100	< 10
2,4-Dinitrophenol		< 100	na	< 200	< 20
2,4-Dinitrotoluene	130	< 50	na	< 100	< 10
2,6-Dinitrotoluene		< 50	па	< 100	< 10
2-Chloronaphthalene		< 50	na	< 100	< 10
2-Chlorophenol		< 50	ла	< 100	< 10
2-Methylnaphthalene		< 50	na	< 100	< 10
2-Methylphenol		< 50	na	< 200	< 20
2-Nitroaniline		< 50	па	< 100	< 10
2-Nitrophenol		< 50	na	< 100	< 10
3,3'-Dichlorobenzidine		< 50	па	210	< 10
3+4-Methylphenol		< 50	ла	< 100	< 10
3-4-Methylphenol 3-Nitroaniline		< 50	па	< 100	< 10
		< 100	71a 71a	< 200	< 20
4,6-Dinitro-2-methylphenol 4-Bromophenyl phenyl ether	l	< 50	па	<100	<10
		< 50	·	< 100	< 10
4-Chloro-3-methylphenol		< 50	na na	< 100	< 10
4-Chloroaniline		< 50		<100	< 10
4-Chlorophenyl phenyl ether			na	< 100	< 10
4-Nitroaniline		< 50	na	< 100	< 10
4-Nitrophenol		< 50	па	< 100	< 10
Acenaphthene		< 50	na	·	<10
Acenaphthylene	{	< 50	na	< 100	
Aniline	<u>]</u>	< 50	na	<100	< 10
Anthracene	<u> </u>	< 50	na	< 100	< 10
Azobenzene		< 50	na	< 100	< 10
Benz(a)anthracene		< 50	па	< 100	< 10
Benzo(a)pyrene	l	< 50	па	< 100	< 10
Benzo(b)fluoranthene		< 50	na	< 100	< 10
Benzo(g.h,i)perylene		< 50	па	< 100	< 10
Benzo(k)fluoranthene		< 50	na	<100	< 10
Benzoic acid		< 100	па	< 200	< 40
Benzyl alcohol		< 50	na	< 100	< 10
Bis(2-chloroethoxy)methane		< 50	па	< 100	< 10
Bis(2-chloroethyl)ether		< 50	na	< 100	< 10
Bis(2-chloroisopropyl)ether		< 50	na	< 100	< 10
Bis(2-ethylhexyl)phthalate		< 50	na	< 100	< 10
Butyl benzyl phthalate		< 50	na	< 100	< 10
Carbazole		< 50	na	< 100	< 10
Chrysene		< 50	na	< 100	< 10
Dibenz(a,h)anthracene		< 50	na	< 100	< 10
Dibenzofuran		< 50	na	< 100	< 10
Diethyl phthalate		< 50	па	< 100	< 10
Dimethyl phthalate		< 50	пц	< 100	< 10
Di-n-butyl phthalate]	< 50	па	< 100	< 10
Di-n-octyl phthalate		< 50	na	< 100	< 20
Fluoranthene		< 50	па	< 100	< 10
Fluorene		< 50	na	< 100	< 10
Hexachlorobenzene	130	< 50	na	< 100	< 10
Hexachlorobutadiene	500	< 50	na	< 100	< 10
Hexachlorocyclopentadiene	1	< 50	па	< 100	< 10
Hexachloroethane	3000	< 50	na	< 100	< 10
Indeno(1,2,3-cd)pyrene		< 50	па	< 100	< 10
Isophorone		< 50	na	< 100	< 10
Naphthalene		< 50	ла	< 100	< 10
Nitrobenzene	2000	< 50	па	<100	< 10
N-Nitrosodimethylamine		< 50	na	<100	< 10
		< 50	na	<100	< 10
N-Nitrosodi-n-propylamine	<u> </u>	< 50	na na	<100	< 10
N-Nitrosodiphenylamine	100000	< 100		< 200	< 10
Pentachlorophenol	10000	< 100	na		< 10
		1 < 50	na	< 100	<u> </u>
Phenanthrene				<100	10
Phenanthrene Phenol Pyrene		< 50	na na	<100 <100	< 10

Injection Well 2014 Quarterly Analytical Summary

	Toxicity				
	Characteristics	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
General Chemistry (mg/L unless otherwi	se stated)				
Specific Conductance (umhos/cm)		7100	na	1900	1100
Chloride		2400	na	510	220
Sulfate		35	na	41	26
Total Dissolved Solids		5240	па	1380	742
pH (pH Units)		6.25	na	7.10	7.08
Bicarbonate (As CaCO3)		380	na	220	150
Carbonate (As CaCO3)		<2.0	па	<2.0	<2.0
Calcium		490	na	480	110
Magnesium		75	na	99	23
Potassium		37	na	36	8.2
Sodjum		1000	na	1100	220
Total Alkalinity (as CaCO3)		380	กล	220	150
Total Metals (mg/L)					
Arsenic	5.0	< 0.020	па	< 0.020	< 0.020
Barium	100.0	0,56	na	0.63	0.20
Cadmium	1.0	< 0.0020	па	< 0.0020	< 0.0020
Chromium	5.0	< 0.0060	na	< 0.0060	< 0.0060
Lead	5	< 0.0050	na	< 0.0050	< 0.0050
Selenium	1	< 0.050	na	< 0.050	< 0.050
Silver	5	< 0.0050	na	< 0.0050	< 0.0050
Mercury	0.2	< 0.0010	па	< 0.00020	< 0.00020
gnitability, Corrosivity, and Reactivity					
Reactive Cyanide (mg/L)		<1.0	na	<1.0	<1.0
Reactive Sulfide (mg/kg)		1.6	na	<1.0	3.0
Ignitability (°P)	< 140° F	>200	ria	>200	>200
Corrosivity (ph Units)	2 or > 12.5	6,25	па	7.44	6.82

Notes: $na \approx A$ water sample was not collected during the 2nd quarter of 2014 because the well was not operational.

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5. A water sample and corresponding water analysis will be provided once the well is perforated and a water sample can be obtained. The closest off set is the Ashcroft SWD #1 (API# 30-045-30788) located approximately 3/4 miles to the east. The Ashcroft is a SWD well operated by XTO Energy Resources and is completed in the Entrada and Bluff formations. The NMOCD records did not containing any data regarding the in-situ water quality found in the Ashcroft SWD #1 prior to injection.

VIII. Geology

Underground Drinking Water Sources

The known fresh water zones for the immediate area of the injection well are the Nacimiento and Ojo Alamo Formations of the Tertiary Age. The Nacimiento occurs at the surface and is about 570 feet thick in the immediate area. The Ojo Alamo is about 165 feet thick at an approximate depth of 569 to 734 feet.

Most of the water wells in the surrounding area are concentrated along the San Juan River flood plain and terraces north of the river and Bloomfield Terminal. These wells are completed in the Quaternary sand and gravels at depth of approximately 25 to 75 feet. These sand and gravels rest upon the Nacimiento.

One well (POD# SJ 02148) in the SE quarter of Section 27, T29N, R11W was drilled to a depth of 305 feet intersecting a water bearing sand within the Nacimiento at 225 to 285 feet with an estimated yield of 10gpm. The surface elevation is approximately 20 feet above the surface at proposed injection well location. The total depth of the well is at an approximate elevation of 5,250 feet. This is the deepest water well drilled in the study area according to the NM State Engineer's Office online records. The Point of Diversion Summary for the well is included (below).

Ojo Alamo fin also identified as protectable waters - Sources: Store \$ OTR:566



New Mexico Office of the State Engineer Point of Diversion Summary

			ters are arters are			i) (NAD83 UTM in meters)					
P	OD Number	Q64	Q64 Q16 Q4			Rng	х		۲ 		
S.	J 02148		2 4	4 27	29N	11W	234448	4065184	* 😡		
Driller License:	847										
Driller Name:	SAVAGE, BOB										
Drill Start Date:	10/20/1987	Drill Fini	ish Dat	e:	11/	16/1987	Plug Date:				
Log File Date:	PCW Rcv Date:					Source:		Shallow			
Pump Type:		Pipe Discharge Size:					Estimated Yield: 10 GPM				
Casing Size:	7.00	Depth W	lell:		305	feet	Dep	th Water:	186 feet		
Wate	r Bearing Stratifi	cations:	Тор	b Bott	om	Descrip	tion				
	·		225	5	285	Sandsto	ne/Grave	ne/Gravel/Conglomera			
Casing Perfo		orations:	Τορ	Bott	om						
			266	5	305						

No sample available - on record as part of remediation project for facility

*UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

Injection Zone

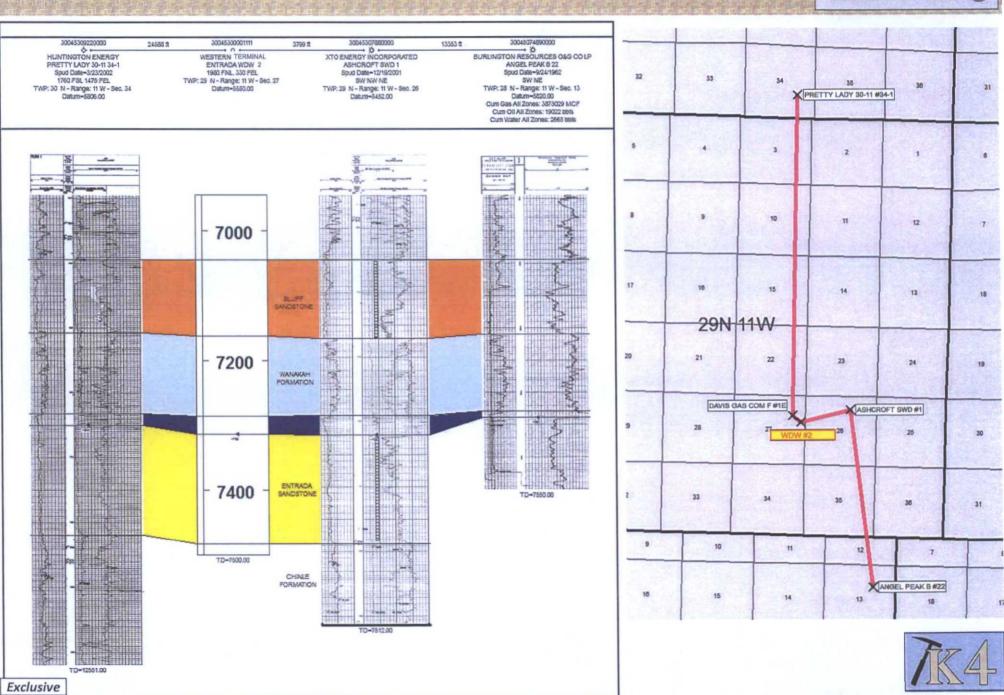
The Entrada Sandstone formation is Jurassic in age and is described as a wind blown deposit with fine to coarse-grained sandstone particles, clean and well sorted. Generally, the Entrada Sandstone formation is 200 to 280 ft thick throughout the San Juan Basin. Natural fractures are few to nonexistent. The overlaying formation is the Todilto Limestone. Cores from the oil bearing portion of the Entrada formation indicate high porosities and permeability's with averages ranging from 22 – 26 percent and 150 – 450 millidarcies respectively.

The Bluff Sandstone maybe considered as a future injection zone and is not part of this application.

The geologic prognosis and a cross section showing the regional thickness and log characteristics are included (below).

Waste Disposal Well (WDV						
Geologic Prognosis <u>Header</u>	Entrada	& Bluff WDW, San J	luan County			
	litude (NAD 83):	36.698499 Objective;	Entrada & Bluff FM	Water Disposal Longdude (NAD 83)	: -107.971156 Location: T	WP: 29 N - Range: 11 W -
Sec. 27 Field: Surface Location Footage: 1980 FNL, 330	Basin	County:	San Juan			
Bottom Hole Location Footage: Same as S		Sta		co Lease:	GL EI	evation:
5538 Surface Owner:		KB Elevation:	5550			
Туре:	Proposed T	D: 7500		November 25, 201		
Expiration Date:	Propos	ed Plugback:		Geologist: Pe	eter Kondrat Depth:	
Formation Tops	Top MD (KB)	Top Subsea (KB)	Thickness (FT)	Rock Type	Drilling Notes	Depositional Environment
Quaternary Alluvium	0	5550	10	Unconsolidated Gravels	Boulders, water, lost	Continental Rivers
Naclemento FM	10	5540	505	Shale & Sandstone	Water, gas	Continental Rivers
Ojo Alamo Sandstone	515	5035	110	Sandstone & Shale	Water, gas	Continental Rivers
Kirtland Shale	625	4925	578	Interbeddded Shale, sandstone	Water, gas	Coastal to Alluvial Plain
Fruilland FM	1203	4347	515	Interbeddded Shale, sandstone &	Coalbed methane	Coastal Plain
Pictured Cliffs Sandstone	1718	3832	162	Sandstone	Gas, water	Regressive Marine Beach
Lewis Shale	1880	3670	780	Shale, thin limestones	Gas	Offshore Marine
Huerfanito Bentonite Bed	2660	2890	28	Alterted volcanic ash, bentonite bed	Swelling clay	Volcanic Ash Layers
Chacra FM	2688	2862	189	Sandstone, sitstone	Gas, Water	Offshore Marine Sands
Lower Lewis Shale	2877	2673	458	Shale, thin limestones	Gas, Water	Offshore Marine
Cliff House Sandstone	3335	2215	59	Sandstone	Gas, Water, Oil	Transgressive Marine Beach
Mensfee Member	3394	2156	643	Interbeddded Shale, sandstone &	Gas, Water, Oit	Coastal Plain
Point Lookout Sandstone	4037	1513	386	Sandstone	Gas, Water, Oil	Regressive Marine Beach
Mancos Shale	4423	1127	869	Shale, thin sandstones & silistones	Gas, Water, Oil	Offshore Marine
Niobrara A	5292	258	102	Interbeddded Shale, sandstone	Oil, Gas, Water	Offshore Marine Sands
Niobrara B	5394	156	123	Interbeddded Shale, sandstone	Oil, Gas, Water	Offshore Marine Sands
Niobrara C	5517	33	82	Interbeddded Shale, sandstone	Oil, Gas, Water	Offshore Marine Sands
Gattup FM	5599	-49	243	Interbedided Shale, sandstone	Oil, Gas, Waler	Regressive Marine to
Juana Lopez FM	5842	-292	123	Shale, thin limestones	Oil, Gas, Water	Offshore Marine
Carlile Shale	5965	-415	95	Shale, thin limestones	Oil, Gas, Water	Offshore Marine
Greenhorn Limestone	6060	-510	56	Limestone	Oil, Gas, Water	Offshore Marine
Graneros Shale	6116	-566	33	Shale	Oll, Gas, Water	Offshore Marine
Dakota FM	6149	-599	216	Sandstone, shale & coals	Oil, Gas, Water	Transgressive Coastal Plain to Marine
Burro Canyon FM	6365	-815	46	Sandstones, some conglomerate & mudstone	Oil, Gas, Water	Braided Fluvial Fill
Morrison FM	6411	-861	635	Mudstones, sandstone	Oil, Gas, Water	Continental Rivers
Bluff Sandstone (aka Junction Creek Sandstone), Morrison FM Member	7046	-1496	118	Sandstone	Oil, Gas, Water	Alluvial Plain and Eolian
Wanakah FM	7164	-1614	123	Sitstone, Sandstone	Oil, Gas, Water	Alluvial Plain and Eolian
Todiito Limestone & Anhydrite	7287	-1737	28	Interbedded Limestone &	Oil, Gas, Water, Anyhydrite	Alluvial Plain and Eolian
Entrada Sandstone	7315	-1765	168		Oil, Gas, Water	Eolian Sand Dunes
Chinle FM	7483	-1933	17	Interbeddded Shale, sandstone	Oil, Gas, Water	Continental Rivers
Proposed TD	7500	-1950		TD designed for complete log co	vergage over Entrada Sand	stone.
Notes: Any significant flow rates, abnormal		L		<u> </u>		

Regional Bluff & Entrada Sandstones Cross-Section Western



IX. After the well is drilled, cased and perforated an injectivity test will be performed. If the injection rate is less than 6 BPM prior to parting pressure, the well will be stimulated w/ approximately 222,000 lbs of 20/40 white sand in 110,000 gals of 30# cross linked gel at 50 bpm. Note: actual job design (if needed) will be based on actual results of the injectivity test.

X. All open hole and cased hole logs will be filed with NMOCD once the well is drilled and completed.

XII. Available geologic and engineering data has been examined and no evidence of open faults or any other hydrological connection between the disposal zone, the Entrada Formation, and any underground sources of drinking water, the Nacimiento Formation.

XIII. Based on the information available online as well as information from the "Four Corners Geological Society" there are no known faults located in the area of the proposed well. Natural fractures are few to nonexistent in the Entrada formation. The overlaying formation is the relatively impermeable Todilto Limestone. The closest off set is the Ashcroft SWD #1 (API# 30-045-30788) located approximately ¾ of mile to the east of the proposed injection well. The Ashcroft SWD #1 is a SWD well operated by XTO Energy and is completed in the Bluff and Entrada formations and has no evidence of water migrating out of the injection zones.

XIII. Public Notice will follow NMOCD review of this application.] for Class I (NH) Class II provide in initial application in 12/2016.

Ad No. 72205

STATE OF NEW MEXICO County of San Juan:

SAMMY LOPEZ, being duly sworn says: That he IS the PUBLISHER of THE DAILY TIMES, a daily newspaper of general circulation published in English at Farmington, said county and state, and that the hereto attached Legal Notice was published in a regular and entire issue of the said DAILY TIMES, a daily newspaper duly qualified for the purpose within the meaning of Chapter 167 of the 1937 Session Laws of the State of New Mexico for publication and appeared in the Internet at The Daily Times web site on the following day(s):

Monday, December 14, 2015

And the cost of the publication is \$60.13

ON 12/15/15 SAMMY LOPEZ appeared before me, whom I know personally to be the person who signed the above document.

Christine Sellers



COPY OF PUBLICATION

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Mastern Pofining
Western Refining Southwest, Inc., rep- resented by John Thompson (505) 327-
Southwest, Inc., rep-
resented by John
Thompson (505) 327-
4892, has applied to the New Mexico Oil
the New Mexico Oil
Conservation Division
for administrative ap-
tor authinistrative up
proval to be author-
ized to inject non-
hazardous treated wa-
ter generated from the Bloomfield Termi-
the Bloomfield Termi-
nal (former Refinery)
into the proposed
Class I (pop-
nal (former Refinery) into the proposed Class I (non- hazardous) disposal well. The proposed SMD H2 will blocat
nazardous) disposal
well. The proposed
101 EML P. 1107
FEL, Section 27, T29N, R11W, San Juan Coun-
P11W San Juan Coun-
tv. New Mexico.
LY, NEW MEXICO.
The proposed injec-
tion zone is the Entrada formation.
Entrada formation.
The estimated injec-
The estimated injec- tion depths are 7315'
to 7,483' and the maximum anticipated
maximum anticipated
initiation rate is 8000
injection rate is 8000 BPD. The maximum
BPD. The maximum
injection pressure will
he determined trom a
step rate test. Inter- ested parties can make comments to
ested parties can
make comments to
this application to the
Uns application to the
NM Oil Conservation Division, 1220 St. Francis Dr., Santa Fe,
Division, 1220 St.
Division, 1220 St. Francis Dr., Santa Fe, NM 87505. Com- ments must be re- colled within 15 days
NM 87505. Com-
NM 87505. Com- ments must be re- ceived within 15 days
ceived within 15 days
of the date of this
or the date of this
publication.
i legal No. 72205 pub-

Legal No. 72205 published in The Daily Times on Dec 14, 2015 December 10, 2015

VIA CERTIFIED MAIL

Attn: Crystal Walker (Regulatory Coordinator) Burlington Resources Oil & Gas Company LP 3401 E. 30th Street Farmington, NM 87402

Re: Application of Western Refining Southwest, Inc. for Authorization to Inject in the proposed SWD #2, San Juan, New Mexico.

Dear Ms. Walker,

Western Refining Southwest, Inc. has applied to the New Mexico Oil Conservation Division to dispose of non-hazardous treated water generated from the Bloomfield Terminal (former Refinery) into the Entrada formation in the proposed SWD #2. The SWD #2 will be located 2019' feet from the North line and 110' feet from the East in Section 27, Township 29 North, Range 11 West, San Juan County, New Mexico. As an offset operator (the Calvin #1 is within a half mile of the proposed SWD #2) you are being notified of this application pursuant to NMOCD rules

If you have no objection to this Application then no further action is required on your part. If you would like to file an objection or to request a hearing please notify the NMOCD at 1220 South St. Francis, St., Santa Fe, NM 87505 within 20 days of receipt of this notice.

If you have any questions or need additional information please feel free to call me at (505) 327-4892.

Sincerely,

John Thompson Walsh Engineering & Production Agent/Engineer for Western Refining Southwest

December 10, 2015

VIA CERTIFIED MAIL

Attn: Diane Montano (Regulatory Compliance Mgr.) XTO Energy, Inc. 382 Road 3100 Aztec, NM 87410

Re: Application of Western Refining Southwest, Inc. for Authorization to Inject in the proposed SWD #2, San Juan, New Mexico.

Dear Ms. Montano,

Western Refining Southwest, Inc. has applied to the New Mexico Oil Conservation Division to dispose of non-hazardous treated water generated from the Bloomfield Terminal (former Refinery) into the Entrada formation in the proposed SWD #2. The SWD #2 will be located 2019' feet from the North line and 110' feet from the East in Section 27, Township 29 North, Range 11 West, San Juan County, New Mexico. As an offset operator of the Sullivan Gas Com D #1E, Davis Gas Com F #1E, Davis Gas Com F #1R, all of which are within a half mile of the proposed SWD #2, you are being notified of this application pursuant to NMOCD rules

If you have no objection to this Application then no further action is required on your part. If you would like to file an objection or to request a hearing please notify the NMOCD at 1220 South St. Francis, St., Santa Fe, NM 87505 within 20 days of receipt of this notice.

If you have any questions or need additional information please feel free to call me at (505) 327-4892.

Sincerely,

John Thompson Walsh Engineering & Production Agent/Engineer for Western Refining Southwest

December 10, 2015

VIA CERTIFIED MAIL

Attn: Regulatory Coordinator Holcomb Oil & Gas Inc. 512 W. Arrington Farmington, NM 87402

Re: Application of Western Refining Southwest, Inc. for Authorization to Inject in the proposed SWD #2, San Juan, New Mexico.

Dear Mr. Holcomb,

Western Refining Southwest, Inc. has applied to the New Mexico Oil Conservation Division to dispose of non-hazardous treated water generated from the Bloomfield Terminal (former Refinery) into the Entrada formation in the proposed SWD #2. The SWD #2 will be located 2019' feet from the North line and 110' feet from the East in Section 27, Township 29 North, Range 11 West, San Juan County, New Mexico. As an offset operator of the Davis Com J#1, Jacque #1, Jacque #2, all of which are within a half mile of the proposed SWD #2, you are being notified of this application pursuant to NMOCD rules

If you have no objection to this Application then no further action is required on your part. If you would like to file an objection or to request a hearing please notify the NMOCD at 1220 South St. Francis, St., Santa Fe, NM 87505 within 20 days of receipt of this notice.

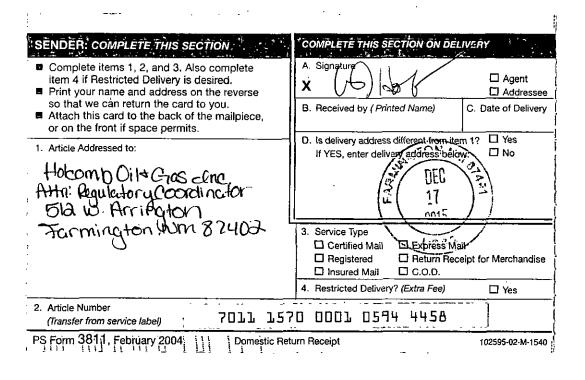
If you have any questions or need additional information please feel free to call me at (505) 327-4892.

Sincerely,

John Thompson Walsh Engineering & Production Agent/Engineer for Western Refining Southwest

SENDER COMPLETENTISSECTION	COMPLETENTISCECTIONONDELLERA
 Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired. Print your name and address on the reverse so that we can return the card to you. Attach this card to the back of the mailpiece, or on the front if space permits. 	A. Signature A. Signature Adgent Addressee B. Roceived by (Printed Name) C. Date of Delivery JULICIA Dee 13-17-15
1. Article Addressed to:	D. Is delivery address different from item 1? Yes If YES, enter delivery address below:
Burlington Resources Oil*Gra Attn: Orbital Walkow 3401 8.30th St.	
Farmington, NM 8740	3. Service Type □ Certified Mail □ Express Mail □ Registered □ Return Receipt for Merchandise □ Insured Mail □ C.O.D.
	4. Restricted Delivery? (Extra Fee)
2. Article Number 7011 15 (Transfer from service label)	70 0001/10594/4445 1
PS Form 3811, February 2004 Domestic Retu	urn Receipt 102595-02-M-1540

SENDER COMPLETENTISSECTION	COMPUTIENTISSECTIONONDERVERY				
 Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired. Print your name and address on the reverse so that we can return the card to you. Attach this card to the back of the mailpiece, or on the front if space permits. Article Addressed to: XTO Energy, CINC AHHn Diane Monteino 	A. Signature X Agent B. Received by (<i>Printed Name</i>) C. Date of Delivery C. Date of Delivery D. Je delivery address different from item 1? If YES, enter delivery address below: No DEC 17 2015				
382 Ed. 3100 Aztec, NM 87410	3. Service Type Certified Mail Express Mail Registered Return Receipt for Merchandise Insured Mail C.O.D. 4. Restricted Delivery? (Extra Fee) Yes				
2. Article Number	20 0001 0594 4441]				
PS Form 3811; February 2004	urn Receipt 102595-02-M-1540				



Appendix C Injection Fluid Analytical

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Injection Well 2014 Quarterly Analytical Summary

	Toxicity		2-4 0	2-1 0	Ath Commerce
Volatile Organic Compounds (ug/L)	Characteristics	1/23/2014	2nd Quarter	3rd Quarter 7/28/2014	4th Quarter 10/1/2014
1,1,1,2-Tetrachloroethane	i	< 10	па	< 2.0	< 5.0
1,1,1-Trichloroethane		< 10	na	< 2.0	< 5.0
1,1,2,2-Tetrachloroethane		< 20	na	< 4.0	< 10
1,1,2-Trichloroethane		< 10	па	< 2.0	< 5.0
1,1-Dichloroethane		< 10	na	< 2.0	< 5.0
1,1-Dichloroethene		< 10	na	< 2.0	< 5.0
1,1-Dichloropropene I,2,3-Trichlorobenzene		<10 <10	na na	< 2.0	< 5.0
1,2,3-Trichloropropane		< 20	na	< 4.0	< 10
1,2,4-Trichlorobenzene		< 10	na	< 2.0	< 5.0
1,2,4-Trimethylbenzene		< 10	па	< 2.0	< 5.0
1,2-Dibromo-3-chloropropane		< 20	na	< 4.0	< 10
1,2-Dibromoethane (EDB)		< 10	na	< 2.0	< 5.0
1,2-Dichlorobenzene		< 10	na	< 2,0	< 5.0
1,2-Dichloroethane (EDC)	500	< 10 < 10	na na	< 2.0	< 5.0
1,2-Dichloropropane 1,3,5-Trimethylbenzene		< 10	na	< 2.0	< 5.0
1,3-Dichlorobenzene		< 10	na	< 2,0	< 5.0
1,3-Dichloropropane		< 10	па	< 2.0	< 5.0
1,4-Dichlorobenzene	7500	< 10	па	< 2.0	< 5.0
1-Methylnaphthalene		< 40	na	< 8.0	< 20
2,2-Dichloropropane		< 20	na	< 4.0	< 10
2-Butanone		200	na	< 20	< 50
2-Chlorotoluene		< 10	na	< 2.0	< 5,0
2-Hexanone		<100 <40	na	< 20	< 50 < 20
2-Methylnaphthalene 4-Chlorotoluene		<10	na na	< 2.0	< 5.0
4-Isopropyltoluene		<10	na	< 2.0	< 5.0
4-Methyl-2-pentanone		< 100	па	< 20	< 50
Acetone		1400	па	85	120
Benzene	500	< 10	na	< 2.0	< 5.0
Bromobenzene		<10	na	< 2.0	< 5.0
Bromodichloromethane		<10	na	< 2.0	< 5.0
Bromoform		< 10	па	< 2.0	< 5.0
Bromomethane Carbon disulfide		< 30 < 100	na na	< 6.0	<15 < 50
Carbon Tetrachloride	500	<10	<u>па</u> па	< 2.0	< 5.0
Chlorobenzene	100000	<10	na	< 2.0	< 5.0
Chloroethane	-	< 20	пà	< 4.0	< 10
Chloroform	6000	< 10	na	< 2.0	< 5.0
Chloromethane		< 30	na	< 6.0	< 15
cis-1,2-DCE		< 10	na	< 2.0	< 5.0
cis-1,3-Dichloropropene		< 10	na	< 2.0	< 5.0
Dibromochloromethane Dibromomethane	· [< 10	ла ла	< 2.0	< 5.0
Dichlorodifluoromethane		< 10	ла	< 2.0	< 5.0
Ethylbenzene		< 10	na	< 2.0	< 5.0
Hexachlorobutadiene	500	< 10	па	< 2.0	< 5.0
Isopropylbenzene		< 10	па	< 2.0	< 5.0
Methyl tert-butyl ether (MTBE)		< 10	ла	< 2.0	< 5,0
Methylene Chloride		< 30	па	< 6.0	< 15
Naphthalene	l	< 30	na	< 4.0	< 10
n-Butylbenzene		<10 <20	па	< 6.0	< 15 < 5,0
n-Propylbenzene sec-Butylbenzene		<10	na na	< 2.0	< 5,0
Styrene		< 10	na	< 2.0	< 5.0
tert-Butylbenzene		< 10	na	< 2.0	< 5.0
Tetrachloroethene (PCE)		< 10	ла	< 2.0	< 5.0
Toluene		< 10	na	< 2.0	< 5.0
trans-1,2-DCE		< 10	па	< 2.0	< 5,0
trans-1,3-Dichloropropene		< 10	na	< 2.0	< 5.0
Trichloroethene (TCE)	{	<u> </u>	na	< 2.0	< 5.0
Trichlorofluoromethane	200	< 10	na	<2.0	< 5.0
Vinyl chloride	200	<10 <15	na	< 2.0	< 5.0 < 7.5

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Injection Well 2014 Quarterly Analytical Summary

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	Toxicity	1et Ourset	and Our-	2rd Ourster	446 0
Semi-Velatile Organic Compounds (ug/L)	Characteristics	1st Quarter	2nd Quarter	3rd Quarter	4th Quarte
1,2,4-Trichlorobenzene	1	< 50	па	: < 100	< 10
		< 50	па	<100	< 10
1,2-Dichlorobenzene		< 50		<100	< 10
1,3-Dichlorobenzene	7500			< 100	< 10
1,4-Dichlorobenzene	/500	< 50	па	<100	< 10
1-Methylnaphthalene		< 50	па		
2,4,5-Trichlorophenol		< 50	па	< 100	< 10
2,4,6-Trichlorophenol	2000	< 50	na	< 100	< 10
2,4-Dichlorophenol		< 100	па	< 200	< 20
2,4-Dimethylphenol		< 50	na	< 100	< 10
2,4-Dinitrophenol		< 100	na	< 200	< 20
2,4-Dinitrotoluene	130	< 50	na	< 100	< 10
2,6-Dinitrotoluene		< 50	na	< 100	< 10
2-Chloronaphthalene		< 50	па	< 100	< 10
2-Chlorophenol	.	< 50	na	<100	< 10
2-Methylnaphthalene		< 50	па	< 100	< 10
2-Methylphenol		< 50	па	< 200	< 20
2-Nitroaniline		< 50	ла	< 100	< 10
2-Nitrophenol		< 50	na	< 100	< 10
3,3'-Dichlorobenzidine		< 50	na	210	< 10
3+4-Methylphenol		< 50	na	< 100	< 10
		< 50		< 100	< 10
3-Nitroaniline		·	na		
4,6-Dinitro-2-methylphenol		< 100	па	< 200	< 20
4-Bromophenyl phenyl ether		< 50	<u>na</u>	< 100	< 10
4-Chloro-3-methylphenol		< 50	па	< 100	< 10
4-Chloroaniline		< 50	na	< 100	< 10
4-Chlorophenyl phenyl ether		< 50	na	< 100	< 10
4-Nitroaniline		< 50	na	<100	< 10
4-Nitrophenol		< 50	na	< 100	< 10
Acenaphthene		< 50		< 100	< 10
Acenaphthylene	·····	< 50	na	< 100	< 10
Aniline		< 50	na	< 100	< 10
Anthracene		< 50	na	< 100	< 10
Azobenzene		< 50	na	< 100	< 10
Benz(a)anthracene		< 50	<u>na</u>	<100	< 10
Benzo(a)pyrene		< 50	na	< 100	< 10
Benzo(b)fluoranthene		< 50	na	< 100	< 10
Benzo(g,h,i)perylene		< 50	<u>na</u>	< 100	< 10
Benzo(k)fluoranthene		< 50	na	< 100	< 10
Benzoic acid		< 100	па	< 200	< 40
Benzyl alcohol		< 50	na	< 100	< 10
Bis(2-chloroethoxy)methane		< 50	па	< 100	< 10
Bis(2-chloroethyl)ether		< 50	ла	< 100	< 10
Bis(2-chloroisopropyl)ether		< 50	ла	< 100	< 10
Bis(2-ethylhexyl)phthalate		< 50	na	< 100	< 10
Butyl benzyl phthalate		< 50	na	< 100	< 10
Carbazole		< 50	na	< 100	< 10
Chrysene		< 50	па	< 100	< 10
Dibenz(a,h)anthracene		< 50	na	< 100	< 10
				< 100	< 10
Dibenzofuran		< 50	па		
Diethyl phthalate		< 50	na	< 100	< 10
Dimethyl phthalate		< 50	па	< 100	< 10
Di-n-butyl phthalate		< 50	па	< 100	< 10
Di-n-octyl phthalate		< 50	na	< 100	< 20
Fluoranthene		< 50	na	< 100	< 10
Fluorene		< 50	na	< 100	< 10
Hexachlorobenzene	130	< 50	na	< 100	< 10
Hexachlorobutadiene	500	< 50	na	< 100	< 10
Hexachlorocyclopentadiene		< 50	па	< 100	< 10
Hexachloroethane	3000	< 50	na	< 100	< 10
Indeno(1,2,3-cd)pyrene		< 50	na	< 100	< 10
Isophorone		< 50	па	< 100	< 10
Naphthalene		< 50	na	<100	< 10
Nitrobenzene	2000	< 50	na	< 100	< 10
N-Nitrosodimethylamine	1000	< 50	па	< 100	< 10
				L-	
N-Nitrosodi-n-propylamine		< 50	na	< 100	< 10
N-Nitrosodiphenylamine		< 50	na	< 100	< 10
Pentachlorophenol	100000	< 100	na	< 200	< 20
Phenanthrene			па	< 100	< 10
Phenol		< 50	na	< 100	< 10
Pyrene		< 50	ла	< 100	< 10
Pyridine	5000	< 50	ла	< 100	< 10

Table 3

Injection Well 2014 Quarterly Analytical Summary

	Toxicity				
	Characteristics	1st Quarter	2nd Quarter	3rd Quarter	4th Quarte:
General Chemistry (mg/L unless otherwis	se stated)	_			-
Specific Conductance (umhos/cm)		7100	פת	1900	1100
Chloride		2400	na	510	220
Sulfate		35	па	41	26
Total Dissolved Solids		5240	па	1380	742
pH (pH Units)		6,25	па	7.10	7.08
Bicarbonate (As CaCO3)		380	па	220	150
Carbonate (As CaCO3)		<2,0	na	<2,0	<2.0
Calcium		490	na	480	110
Magnesium		75	na	99	23
Potassium		37	na	36	82
Sodium		1000	па	1100	220
Total Alkalinity (as CaCO3)		380	па	220	150
fotal Metals (mg/L)	、 、				
Arsenic	5.0	< 0.020	па	< 0.020	< 0.020
Barium	100.0	0.56	na	0.63	0.20
Cadmium	1.0	< 0.0020	na	< 0.0020	< 0,0020
Chromium	5.0	< 0.0060	па	< 0.0060	< 0.0060
Lead	5	< 0.0050	na	< 0.0050	< 0.0050
Selenium	3	< 0.050	na	< 0.050	< 0.050
Silver	5	< 0,0050	na	< 0.0050	< 0.0050
Mercury	0.2	< 0.0010	па	< 0.00020	< 0.00020
gnitability, Corrosivity, and Reactivity					
Reactive Cyanide (mg/L)		<1.0	na	<1.0	<1.0
Reactive Sulfide (mg/kg)		1.6	na	<1.0	3.0
Ignitability (°F)	< 140° F	>200	ла	>200	>200
Corresivity (ph Units)	< 2 or > 12.5	6.25	па	7.44	6,82

na = A water sample was not collected during the 2nd quarter of 2014 because the well was not operational.

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HALL ENVIRONMENTAL ANALÝSIS LABORATORY

Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenyironmental.com

February 13, 2014

Kelly Robinson Western Refining Southwest, Inc. #50 CR 4990 Bloomfield, NM 87413 TEL: (505) 632-4135 FAX (505) 632-3911

RE: Injection Well 1-23-2014

OrderNo.: 1401A07

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 1 sample(s) on 1/24/2014 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to <u>www.hallenvironmental.com</u> or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

andy

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

CLIENT: Western Refining Southwes	t, Inc.	C	lient Samp	le ID: Inj	ection Well				
Project: Injection Well 1-23-2014			Collection	llection Date: 1/23/2014 8:35:00 AM					
Lab ID: 1401A07-001	Matrix:	AQUEOUS	Received Date: 1/24/2014 10:15:00 AM						
Analyses	Result	RL Qual	Units	DF	Date Analyzed	Batch			
EPA METHOD 300.0: ANIONS					Analyst:	JRR			
Chloride	2400	100	mg/L	200	1/27/2014 7:14:18 PM	R1633			
Sulfate	35	5.0	mg/L	10	1/24/2014 8:01:43 PM	R1631			
EPA METHOD 7470: MERCURY			-		Analyst:	DBD			
Мегсигу	ND	0.0010	mg/L	5	1/30/2014 1:52:43 PM	11463			
•		0.0010	mare	v					
EPA 6010B: TOTAL RECOVERABLE					Analyst:				
Arsenic	ND	0.020	mg/L	1	1/29/2014 11:20:46 AM				
Barium	0.56	0.020	mg/L	1	1/29/2014 11:20:46 AM				
Cadmium	ND	0.0020	mg/L	1	1/29/2014 11:20:46 AM				
Calcium	490	5.0	mg/L	5	1/29/2014 11:22:17 AM				
Chromium	ND	0.0060	mg/L	1	1/29/2014 11:20:46 AM				
Lead	ND	0.0050	mg/L	1	1/29/2014 11:20:46 AM				
Magnesium	75	1.0	mg/L	1	1/29/2014 11:20:46 AM				
Potassium	37	1.0	mg/L	1	1/29/2014 11:20:46 AM	11432			
Selenium	ND	0.050	mg/L	1	1/29/2014 11:20:46 AM				
Silver	ND	0.0050	mg/L	1	1/29/2014 11:20:46 AM				
Sodium	1000	20	mg/L	20	1/29/2014 11:50:27 AM				
EPA METHOD 8270C: SEMIVOLATIL					Analyst:				
Acenaphthene	ND	50	µg/L	1	1/30/2014 7:14:30 PM	11420			
Acenaphthylene	ND	50	µg/L	1	1/30/2014 7:14:30 PM	11420			
Aniline	ND	50	μg/L	1	1/30/2014 7:14:30 PM	11420			
Anthracene	ND	50	μg/L	1	1/30/2014 7:14:30 PM	11420			
Azobenzene	ND	50	μg/L	1	1/30/2014 7:14:30 PM	11420			
Benz(a)anthracene	ND	50	μg/L	1	1/30/2014 7:14:30 PM	11420			
Benzo(a)pyrene	ND	50	µg/L	1	1/30/2014 7:14:30 PM	11420			
Benzo(b)fluoranthene	ND	50	µg/L	1	1/30/2014 7:14:30 PM	11420			
Benzo(g,h,i)perylene	ND	50	µg/L	1	1/30/2014 7:14:30 PM	11420			
Benzo(k)fluoranthene	ND	50	µg/L	1	1/30/2014 7:14:30 PM	11420			
Benzoic acid	ND	100	µg/L	1	1/30/2014 7:14:30 PM	11420			
Benzyl alcohol	ND	50	µg/L	1	1/30/2014 7:14:30 PM	11420			
Bis(2-chloroethoxy)methane	ND	50	µg/L	1	1/30/2014 7:14:30 PM	11420			
Bis(2-chloroethyl)ether	ND	50	µg/L	1	1/30/2014 7:14:30 PM	11420			
Bis(2-chloroisopropyl)ether	ND	50	µg/L_	1	1/30/2014 7:14:30 PM	11420			
Bis(2-ethylhexyl)phthalate	ND	50	µg/L	1	1/30/2014 7:14:30 PM	11420			
4-Bromophenyl phenyl ether	ND	50	µg/L	1	1/30/2014 7:14:30 PM	11420			
Butyl benzyl phthalate	ND	50	µg/L	1	1/30/2014 7:14:30 PM	11420			
Carbazole	ND	50	µg/L	1	1/30/2014 7:14:30 PM	11420			
4-Chloro-3-methylphenol	ND	50	µg/L	1	1/30/2014 7:14:30 PM	11420			
4-Chloroaniline	ND	50	µg/L	1	1/30/2014 7:14:30 PM	11420			

Qualifiers: * Value exceeds Maximum Contaminant Level.

- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- RPD outside accepted recovery limits R
- S Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit ND Page 1 of 17
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Analytical Report Lab Order 1401A07

Hall Environme	ntal Analysis Labora		Lab Order 1401A07 Date Reported: 2/13/2014					
CLIENT: Western Ref Project: Injection We Lab ID: 1401A07-00	II 1-23-2014	AQUEOUS	Client Sample ID: Injection Well Collection Date: 1/23/2014 8:35:00 AM Received Date: 1/24/2014 10:15:00 AM					
Analyses	Result	RL Qua	l Units	DF	Date Analyzed	Bate		
EPA METHOD 8270C:	SEMIVOLATILES				Analyst	: DAM		
2-Chloronaphthalene	ND	50	µg/L	1	1/30/2014 7:14:30 PM	1142		
2-Chlorophenol	ND	50	µg/L	1	1/30/2014 7:14:30 PM	1142		
4-Chlorophenyl phenyl e		50	µg/L	1	1/30/2014 7:14:30 PM	1142		
Chrysene	ND	50	μg/L	1	1/30/2014 7:14:30 PM	1142		
Di-n-butyl phthalate	ND	50	μg/L	1	1/30/2014 7:14:30 PM	1142		
Di-n-octyl phthalate	ND	50	µg/L	1	1/30/2014 7:14:30 PM	1142		
Dibenz(a,h)anthracene	NÐ	50	μg/L	1	1/30/2014 7:14:30 PM	1142		
Dibenzofuran	ND	50	µg/L	1	1/30/2014 7:14:30 PM	1142		
1,2-Dichlorobenzene	ND	50	μg/L	1	1/30/2014 7:14:30 PM	1142		
1.3-Dichlorobenzene	ND	50	μg/L	1	1/30/2014 7:14:30 PM	1142		
1,4-Dichlorobenzene	ND	50	μg/L	1	1/30/2014 7:14:30 PM	1142		
3,3'-Dichlorobenzidine	ND	50	μg/L	י 1	1/30/2014 7:14:30 PM	1142		
Diethył phthalate	ND	50	μg/L	1	1/30/2014 7:14:30 PM	1142		
Dimethyl phthalate	ND	50	μg/L	. 1	1/30/2014 7:14:30 PM	1142		
2,4-Dichlorophenol	ND	. 100	μg/L	1	1/30/2014 7:14:30 PM	1142		
2,4-Dimethylphenol	ND	50	μg/L	1	1/30/2014 7:14:30 PM	1142		
4,6-Dinitro-2-methylphen		100		1	1/30/2014 7:14:30 PM	1142		
• •	ND ND	100	μg/L μg/L	1	1/30/2014 7:14:30 PM	1142		
2,4-Dinitrophenol								
2,4-Dinitrotoluene	ND	50	μg/L	1	1/30/2014 7:14:30 PM	1142		
2.6-Dinitrotoluene	ND	50	µg/L	1	1/30/2014 7:14:30 PM	1142		
Fluoranthene	ND	50	µg/L	1	1/30/2014 7:14:30 PM	1142		
Fluorene	ND	50	µg/L	1	1/30/2014 7:14:30 PM	1142		
Hexachlorobenzene	ND	50	µg/L	1	1/30/2014 7:14:30 PM	1142		
Hexachlorobutadiene	ND	50	μg/L	1	1/30/2014 7:14:30 PM	1142		
Hexachlorocyclopentadie		50	µg/L	1	1/30/2014 7:14:30 PM	1142		
Hexachloroethane	ND	50	µg/L	1	1/30/2014 7:14:30 PM	1142		
Indeno(1,2,3-cd)pyrene	ND	50	µg/L	1	1/30/2014 7:14:30 PM	1142		
Isophorone	ND	50	µg/L	1	1/30/2014 7:14:30 PM	1142		
1-Methylnaphthalene	ND	50	µg/L	1	1/30/2014 7:14:30 PM	1142		
2-Methylnaphthalene	ND	50	µg/L	1	1/30/2014 7:14:30 PM	1142		
2-Methylphenol	ND	50	μg/L	1	1/30/2014 7:14:30 PM	1142		
3+4-Methylphenol	ND	50	µg/L	1	1/30/2014 7:14:30 PM	1142		
N-Nitrosodi-n-propylamin		50	µg/L	1	1/30/2014 7:14:30 PM	11420		
N-Nitrosodimethylamine	ND	50	µg/L	1	1/30/2014 7:14:30 PM	1142		
N-Nitrosodiphenylamine	ND	50	µg/L	1	1/30/2014 7:14:30 PM	11420		
Naphthalene	ND	50	µg/L	1	1/30/2014 7:14:30 PM	1142		
2-Nitroaniline	ND	50	µg/L	1	1/30/2014 7:14:30 PM	11420		
3-Nitroaniline	ND	50	µg/L	1	1/30/2014 7:14:30 PM	11420		
4-Nitroaniline	ND	50	µg/L	1	1/30/2014 7:14:30 PM	11420		

- Qualifiers: * Value exceeds Maximum Contaminant Level.
 - E Value above quantitation range
 - J Analyte detected below quantitation limits
 - O RSD is greater than RSDlimit
 - R RPD outside accepted recovery limits
 - S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 2 of 17

- P Sample pH greater than 2.
- RL Reporting Detection Limit

		<u> </u>				
CLIENT: Western Refining Southwest, Inc	•	C	lient Sample	e ID: Inj	ection Well	
Project: Injection Well 1-23-2014			Collection E	Date: 1/2	3/2014 8:35:00 AM	
Lab ID: 1401A07-001	Matrix:	AQUEOUS	Received I	Date: 1/2	4/2014 10:15:00 AM	
Analyses	Result	RL Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILES					Analyst	: DAM
Nitrobenzene	ND	50	µg/L	1	1/30/2014 7:14:30 PM	11420
2-Nitrophenol	ND	50	µg/L	1	1/30/2014 7:14:30 PM	11420
4-Nitrophenol	ND	50	μg/L	1	1/30/2014 7:14:30 PM	11420
Pentachlorophenol	ND	100	μg/L	1	1/30/2014 7:14:30 PM	11420
Phenanthrene	ND	50	µg/L	1	1/30/2014 7:14:30 PM	11420
Phenol	ND	50	μg/L	1	1/30/2014 7:14:30 PM	11420
Pyrene	ND	50	μg/L	1	1/30/2014 7:14:30 PM	11420
Pyridine	ND	50	⊬9/L	1	1/30/2014 7:14:30 PM	11420
1,2,4-Trichlorobenzene	ND	50	μg/L	1	1/30/2014 7:14:30 PM	11420
2,4,5-Trichlorophenol	ND	50	µg/L	1	1/30/2014 7:14:30 PM	11420
2,4,6-Trichlorophenol	ND	50	μg/L	1	1/30/2014 7:14:30 PM	11420
Surr: 2-Fluorophenol	66.2	22.7-98	%REC	1	1/30/2014 7:14:30 PM	11420
Sur: Phenol-d5	54.5	23.4-74.9	%REC	1	1/30/2014 7:14:30 PM	11420
Surr: 2,4,6-Tribromophenol	97.6	23.3-111	%REC	1	1/30/2014 7:14:30 PM	11420
Surr: Nitrobenzene-d5	86.5	36.8-111	%REC	1	1/30/2014 7:14:30 PM	11420
Surr: 2-Fluorobiphenyl	86.4	38.3-110	%REC	1	1/30/2014 7:14:30 PM	11420
Surr: 4-Terphenyl-d14	73.7	52.1-116	%REC	1	1/30/2014 7:14:30 PM	11420
EPA METHOD 8260B: VOLATILES	10.1	02.11110	, and E o	,	Analyst	
	ND	10	µg/L	10	1/31/2014 3:25:28 PM	R1644
Benzene		10		10	1/31/2014 3:25:28 PM	R1644
Toluene	ND		µg/L µg/l	10		
Ethylbenzene	ND	10	µg/L ug/l	10	1/31/2014 3:25:28 PM	R1644
Methyl tert-butyl ether (MTBE)	ND	10	µg/L	10	1/31/2014 3:25:28 PM 1/31/2014 3:25:28 PM	R1644
1,2,4-Trimethylbenzene	ND	10	µg/L us/l			R1644
1,3,5-Trimethylbenzene	ND	10	µg/L wa″	10	1/31/2014 3:25:28 PM 1/31/2014 3:25:28 PM	R1644
1,2-Dichloroethane (EDC)	ND	10	µg/L	10		R164
1,2-Dibromoethane (EDB)	ND	10	µg/L	10	1/31/2014 3:25:28 PM	R1644
Naphthalene	ND	20	μg/L	10	1/31/2014 3:25:28 PM	R1644
1-Methylnaphthalene	ND	40	μg/L 	10	1/31/2014 3:25:28 PM 1/31/2014 3:25:28 PM	R1644
2-Methylnaphthalene	ND	40	µg/L	10		R1644
Acetone	1400	100	µg/L.	10	1/31/2014 3:25:28 PM	R1644
Bromobenzene	ND	10	µg/L	10	1/31/2014 3:25:28 PM	R1644
Bromodichloromethane	ND	10	µg/L ua/l	10	1/31/2014 3:25:28 PM	R1644
Bromoform ·	ND	10	µg/L ug/l	10	1/31/2014 3:25:28 PM	R1644
Bromomethane	ND	30	µg/L ug/L	10	1/31/2014 3:25:28 PM	R1644
2-Butanone	200	100	µg/L	10	1/31/2014 3:25:28 PM	R164
Carbon disulfide	ND	100	µg/L	10	1/31/2014 3:25:28 PM	R1644
Carbon Tetrachloride	ND	10	µg/L	10	1/31/2014 3:25:28 PM	R164
Chlorobenzene	ND	10	µg/L	10	1/31/2014 3:25:28 PM	R1644
Chloroethane	ND	20	µg/L	10	1/31/2014 3:25:28 PM	R164

Value exceeds Maximum Contaminant Level.

E Value above quantitation range

Qualifiers:

- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 3 of 17

- P Sample pH greater than 2.
- RL Reporting Detection Limit

		÷			Lab Order 1401A07	
Hall Environmental Analys	sis Laborato	ory, Inc.			Date Reported: 2/13/20	14
CLIENT: Western Refining Southwest,	Inc.		Client Samp	le ID: Inj	ection Well	
Project: Injection Well 1-23-2014			Collection	Date: 1/2	3/2014 8:35:00 AM	
Lab ID: 1401A07-001	Matrix: A	QUEOUS	Received	Date: 1/2	4/2014 10:15:00 AM	
Analyses	Result	RL Qua	l Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analyst	DJF
Chloroform	ND	10	µg/L	10	1/31/2014 3:25:28 PM	R16441
Chloromethane	ND	30	µg/L	10	1/31/2014 3:25:28 PM	R16441
2-Chlorotoluene	ND	10	µg/L	10	1/31/2014 3:25:28 PM	R16441
4-Chlorotoluene	ND	10	µg/L	10	1/31/2014 3:25:28 PM	R16441
cis-1,2-DCE	ND	10	µg/L	10	1/31/2014 3:25:28 PM	R16441
cis-1,3-Dichloropropene	ND	10	µg/L	10	1/31/2014 3:25:28 PM	R16441
1,2-Dibromo-3-chloropropane	ND	20	μg/L	10	1/31/2014 3:25:28 PM	R16441
Dibromochloromethane	ND	10	μg/L	10	1/31/2014 3:25:28 PM	R16441
Dibromomethane	ND	10	µg/L	10	1/31/2014 3:25:28 PM	R16441
1,2-Dichlorobenzene	ND	10	μg/L	10	1/31/2014 3:25:28 PM	R16441
1,3-Dichlorobenzene	ND	10	μg/L	10	1/31/2014 3:25:28 PM	R16441
1,4-Dichlorobenzene	ND	10	µg/L	10	1/31/2014 3:25:28 PM	R16441
Dichlorodifluoromethane	ND	10	μĝ/L	10	1/31/2014 3:25:28 PM	R16441
1,1-Dichloroethane	ND	10	μg/L	10	1/31/2014 3:25:28 PM	R16441
1,1-Dichloroethene	ND	10	μg/L	10	1/31/2014 3:25:28 PM	R16441
1,2-Dichloropropane	ND	10	µg/L	10	1/31/2014 3:25:28 PM	R16441
1,3-Dichloropropane	ND	10	μg/L	10	1/31/2014 3:25:28 PM	R16441
2,2-Dichloropropane	ND	20	μg/L	10	1/31/2014 3:25:28 PM	R16441
1,1-Dichloropropene	ND	10	μg/L	10	1/31/2014 3:25:28 PM	R16441
Hexachlorobutadiene	ND	10	μg/L	10	1/31/2014 3:25:28 PM	R16441
2-Hexanone	ND	100	µg/L	10	1/31/2014 3:25:28 PM	R16441
Isopropylbenzene	ND	10	μαλΓ	10	1/31/2014 3:25:28 PM	R16441
4-Isopropyltoluene	ND	10	µg/L	10	1/31/2014 3:25:28 PM	R16441
4-Methyl-2-pentanone	ND	100	⊭s µg/L	10	1/31/2014 3:25:28 PM	R16441
Methylene Chloride	ND	30	µg/L	10	1/31/2014 3:25:28 PM	R16441
n-Butylbenzene	ND	30	µg/L	10	1/31/2014 3:25:28 PM	R16441
n-Propyibenzene	ND	10	μg/L	10	1/31/2014 3:25:28 PM	R16441
sec-Butylbenzene	ND	10	μg/L	10	1/31/2014 3:25:28 PM	R16441
Styrene	ND	10	µg/L	10	1/31/2014 3:25:28 PM	R16441
tert-Butylbenzene	ND	10	µg/L	10	1/31/2014 3:25:28 PM	R16441
1,1,1,2-Tetrachloroethane	ND	10	μg/L	10	1/31/2014 3:25:28 PM	R16441
1,1,2,2-Tetrachloroethane	ND	20	μg/L	10	1/31/2014 3:25:28 PM	R16441
Tetrachloroethene (PCE)	ND	10	μg/L	10	1/31/2014 3:25:28 PM	R16441
trans-1,2-DCE	ND	10	µg/L	10	1/31/2014 3:25:28 PM	R16441
trans-1,3-Dichloropropene	ND	10	μg/L	10	1/31/2014 3:25:28 PM	R16441
1,2,3-Trichlorobenzene	ND	10	μg/L	10	1/31/2014 3:25:28 PM	R16441
1,2,4-Trichlorobenzene	ND	10	μg/L	10	1/31/2014 3:25:28 PM	R16441
1,1,1-Trichloroethane	ND	10	µg/L	10	1/31/2014 3:25:28 PM	R16441
1,1,2-Trichloroethane	ND	10	μg/L	10	1/31/2014 3:25:28 PM	R16441

Qualifiers: * Value exceeds Maximum Contaminant Level.

E Value above quantitation range

•

- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 4 of 17

- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analys	IS LADOR	<u></u>				Date Reported: 2/13/20	14
CLIENT: Western Refining Southwest,	Inc.			lient Sample I			
Project: Injection Well 1-23-2014						3/2014 8:35:00 AM	
Lab ID: 1401A07-001	Matrix:	AQUEOUS		Received Da	te: 1/2	4/2014 10:15:00 AM	<u> </u>
Analyses	Result	RL (Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst	DJF
Trichloroethene (TCE)	ND	10		µg/L	10	1/31/2014 3:25:28 PM	R16441
Trichlorofluoromethane	ND	10		µg/L	10	1/31/2014 3:25:28 PM	R16441
1,2,3-Trichloropropane	ND	20		µg/L	10	1/31/2014 3:25:28 PM	R16441
Vinyl chloride	ND	10		µg/L	10	1/31/2014 3:25:28 PM	R16441
Xylenes, Total	ND	15		µg/L	10	1/31/2014 3:25:28 PM	R16441
Surr: 1,2-Dichloroethane-d4	100	70-130		%REC	10	1/31/2014 3:25:28 PM	R16441
Surr: 4-Bromofluorobenzene	86.4	70-130		%REC	10	1/31/2014 3:25:28 PM	R16441
Surr: Dibromofluoromethane	98.8	70-130		%REC	10	1/31/2014 3:25:28 PM	R16441
Surr: Toluene-d8	101	70-130		%REC	10	1/31/2014 3:25:28 PM	R16441
SM2510B: SPECIFIC CONDUCTANCE						Analyst	SRM
Conductivity	7100	0.010		µmhos/cm	1	1/24/2014 5:53:17 PM	R16304
SM4500-H+B: PH						Analyst	SRM
РH	6.25	1.68	Н	pH units	1	1/24/2014 5:53:17 PM	R16304
SM2320B: ALKALINITY						Analyst	SRM
Bicarbonate (As CaCO3)	380	20		mg/L CaCO3	1	1/24/2014 5:53:17 PM	R16304
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	1/24/2014 5:53:17 PM	R16304
Total Alkalinity (as CaCO3)	380	20		mg/L CaCO3	1	1/24/2014 5:53:17 PM	R16304
SM2540C MOD: TOTAL DISSOLVED S	DLIDS					Analyst	KS
Total Dissolved Solids	5240	100	*	mg/L	1	1/28/2014 5:33:00 PM	11406

Hall Environmental Analysis Laboratory, Inc.

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	Е	Value above quantitation range

- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 5 of 17
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order 1401A07 Date Reported: 2/13/2014

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anatekiabs.com 504 E Sprague Ste, D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anatekiabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	Batch #:	140128036	
Address:	4901 HAWKINS NE SUITE D	Project Name:	1401A07	
	ALBUQUERQUE, NM 87109			
Attn:	ANDY FREEMAN			

Analytical Results Report

Sample Number	140128036-001	Sam	pling Date	1/23/2014	Date	Time Receiv	ed 1/28/2014	12:18 PM
Client Sample ID	1401A07-001E / INJE	CTION WELL			Samp	oling Time	8:35 AM	
Matrix	Water	Sam	ple Location	£				
Comments								
Parameter		Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide (reacti	ive)	ND		1	2/12/2014	CRW	SW846 CH7	
Flashpoint		>200	۴F		2/4/2014	KFG	EPA 1010	
pН		5,89	ph Units		1/31/2014	АJT	EPA 150.1	
Reactive sulfid	e	1,57	mg/L	1	1/29/2014	AJT	SW846 CH7	

Authorized Signature

John Coddington, Lab Manager

MCL EPA's Maximum Contaminant Level

ND Not Detected

PQL Practical Quantitation Limit

This report shall not be reproduced except in full, without the written approval of the laboratory. The results reported relate only to the samples indicated. Soil/solid results are reported on a dry-weight basis unless otherwise noted.

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C595 Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cen00095; FL(NELAP): E871099

Hall Environmental Analysis Laboratory, Inc. Ξ

Client: Western Refining Southwest, Inc.

Project:

Injection Well 1-23-2014

Sample (D MB	SampType: MBLK	TestCode: EPA Method	300.0: Anions			
Client ID: PBW	Batch ID: R16313	RunNo: 16313				
Prep Date:	Analysis Date: 1/24/2014	SeqNo: 470380	Units: mg/L			
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND 0.50					
Sample ID LCS	SampType: LCS	TestCode: EPA Method	300.0: Anions			
Client ID: LCSW	Batch ID: R16313	RunNo: 16313				
Prep Date:	Analysis Date: 1/24/2014	SeqNo: 470381	Units: mg/L			
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.6 0.50 10.00	0 96.0 90	110			
Sample ID MB	SampType: MBLK	TestCode: EPA Method	300.0: Anions			
Sample ID MB Client ID: PBW	SampType: MBLK Batch ID: R16337	TestCode: EPA Method RunNo: 16337	300.0: Anions		<u> </u>	<u> </u>
1			300.0: Anions Units: mg/L			
Client ID: PBW	Batch ID: R16337 Analysis Date: 1/27/2014	RunNo: 16337	Units: mg/L		RPDLimit	Qual
Client ID: PBW Prep Date: Analyte	Batch ID: R16337 Analysis Date: 1/27/2014	RunNo: 16337 SeqNo: 471000	Units: mg/L	%RPD	RPDLimit	Qual
Client ID: PBW Prep Date:	Batch ID: R16337 Analysis Date: 1/27/2014 Result PQL SPK value	RunNo: 16337 SeqNo: 471000	Units: mg/L HighLimit	%RPD	RPDLimit	Qual
Client ID: PBW Prep Date: Analyte Chloride	Batch ID: R16337 Analysis Date: 1/27/2014 Result PQL SPK value ND 0.50	RunNo: 16337 SeqNo: 471000 SPK Ref Val %REC LowLimit	Units: mg/L HighLimit	%RPD	RPDLimit	Qual
Client ID: PBW Prep Date: Analyte Chloride Sample ID LCS	Batch ID: R16337 Analysis Date: 1/27/2014 Result PQL SPK value ND 0.50 SampType: LCS	RunNo: 16337 SeqNo: 471000 SPK Ref Val %REC LowLimit TestCode: EPA Method	Units: mg/L HighLimit	%RPD	RPDLimit	Qual
Client ID: PBW Prep Date: Analyte Chloride Sample ID LCS Client ID: LCSW	Batch ID: R16337 Analysis Date: 1/27/2014 Result PQL SPK value ND 0.50 SampType: LCS Batch ID: R16337 Analysis Date: 1/27/2014	RunNo: 16337 SeqNo: 471000 SPK Ref Val %REC LowLimit TestCode: EPA Method RunNo: 16337	Units: mg/L HighLimit 300.0: Anions Units: mg/L	%RPD %RPD	RPDLimit	Qual

Qualifiers:

* Value exceeds Maximum Contaminant Level.

Е Value above quantitation range

- Analyte detected below quantitation limits J
- 0 RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
 - Р Sample pH greater than 2.
 - Reporting Detection Limit RL

Page 6 of 17

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WO#: 1401A07 13-Feb-14

Client: Western Refining Southwest, Inc.

Injection Well 1-23-2014

Project:

Sample ID 5ml rb	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	8260B: VOL	ATILES		
Client ID: PBW	Batci	n ID: R1	6441	F	RunNo: 1	6441				
Prep Date:	Analysis E)ate: 1/	31/2014	5	SeqNo: 4	74209	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	NÐ	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethyibenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methyinaphthalene	NÐ	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
-Chlorotoluene	ND	1.0								
is-1,2-DCE	ND	1.0								
is-1,3-Dichloropropene	ND	1.0								
,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
ibromomethane	ND	1.0								
,2-Dichlorobenzene	ND	1.0								
,3-Dichlorobenzene	ND	1.0								
,4-Dichlorobenzene	ND	1.0								
lichlorodifluoromethane	ND	1.0								
,1-Dichloroethane	ND	1.0								
,1-Dichloroethene	ND	1.0								
2-Dichloropropane	ND	1.0								
3-Dichloropropane	ND	1.0								

Qualifiers:

2,2-Dichloropropane

* Value exceeds Maximum Contaminant Level.

ND

2.0

- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
 - P Sample pH greater than 2.
 - RL Reporting Detection Limit

Page 7 of 17

1401A07 *13-Feb-14*

WO#:

Client: Western Refining Southwest, Inc.

Project:

Injection Well 1-23-2014

Sample ID 5ml rb	Samp1	Гуре: М	BLK	Tes	stCode: E	PA Method	8260B: VOL	ATILES		
Client ID: PBW	Batcl	h iD: R	16441	I	RunNo: 1	6441				
Prep Date:	Analysis D	Date: 1	/31/2014	;	SeqNo: 4	74209	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichtoropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
lsopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0				•				
1,2,3-Trichloropropane	ND	2.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	8.4		10.00		84.4	70	130			
Surr: Dibromofluoromethane	9.3		10.00		93.4	70	130			
Surr: Toluene-d8	9.3		10.00		93.0	70	130			
Sample ID 100ng Ics	SampT	ype: LC	:s	Tes	tCode: El	PA Method	8260B: VOL	ATILES		
Client ID: LCSW	Batch	1 ID: R1	6441	F	RunNo: 1	6441				
Prep Date:	Analysis D	ate: 1/	31/2014	5	GeqNo: 4	74213	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	107	70	130			
Toluene	20	1.0	20.00	0	101	82.2	124			
Chlorobenzene	18	1.0	20.00	0	92.5	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

Е Value above quantitation range

- Analyte detected below quantitation limits J
- 0 RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Р Sample pH greater than 2.
- Reporting Detection Limit RL

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WO#: 1401A07

Client: Western Refining Southwest, Inc.

Project:

Injection Well 1-23-2014

Sample ID 100ng Ics	SampT									
		ype: LC	S	Tes	tCode: El	PA Method	8260B: VOL	ATILES		
Client ID: LCSW	Batch	ID: R1	6441	F	RunNo: 1	6441				
Prep Date:	Analysis D	ate: 1/	31/2014	SeqNo: 474213			Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	24	1.0	20.00	0	119	83.5	155			
Trichloroethene (TCE)	19	1.0	20.00	0	93.4	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		100	70	130			
Surr: 4-Bromofluorobenzene	8.8		10.00		88.1	70	130			
Surr: Dibromofluoromethane	8.1		10.00		80.7	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- \$ Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
 - P Sample pH greater than 2.
 - RL Reporting Detection Limit

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WO#:

Client: Western Refining Southwest, Inc.

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Project: Injection Well 1-23-2014

Sample ID mb-11420	SampT	ype: MBLK	Tes	tCode: EPA M	lethod i	8270C: Semi	volatiles		
Client ID: PBW	Batch	n ID: 11420	F	RunNo: 16402					
Prep Date: 1/27/2014	Analysis D	ate: 1/30/2014	5	SeqNo: 47342	2	Units: µg/L			
Analyte	Result	PQL SPK valu	e SPK Ref Val	%REC Low	vLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	10							
Acenaphthylene	ND	10							
Aniline	ND	10							
Anthracene	ND	10	•						
Azobenzene	ND	10							
Benz(a)anthracene	ND	10							
Benzo(a)pyrene	ND	10							
Benzo(b)fluoranthene	ND	10							
Benzo(g,h,i)perylene	ND	10							
Benzo(k)fluoranthene	ND	10							
Benzoic acid	ND	20							
Benzyl alcohol	ND	10							
Bis(2-chloroethoxy)methane	ND	10							
Bis(2-chloroethyl)ether	ND	10							
Bis(2-chloroisopropyl)ether	ND	10							
Bis(2-ethylhexyl)phthalate	ND	10							
-Bromophenyl phenyl ether	ND	10							
Butyl benzyl phthalate	ND	10							
Carbazole	ND	10							
l-Chloro-3-methylphenol	ND	10							
-Chloroaniline	ND	10							
2-Chloronaphthalene	ND	10							
2-Chlorophenol	ND	10							
-Chlorophenyl phenyl ether	ND	10							
Chrysene	ND	10							
Di-n-butyl ohthalate	ND	10							
Di-n-octyl phthalate	ND	10							
Dibenz(a,h)anthracene	ND	10							
Dibenzofuran	ND	10							
,2-Dichlorobenzene	ND	10							
,3-Dichlorobenzene	ND	10							
4-Dichlorobenzene	ND	10							
3'-Dichlorobenzidine	ND	10							
Diethyl phthalate	ND	10							
Dimethyl phthalate	ND	10							
4-Dichlorophenol	ND	20							
4-Dimethylphenol	ND	10							
,6-Dinitro-2-methylphenol	ND	20							

Qualifiers:

2,4-Dinitrophenol

Value exceeds Maximum Contaminant Level. *

ND

20

- Ε Value above quantitation range
- Analyte detected below quantitation limits J
- 0 RSD is greater than RSDlimit
- RPD outside accepted recovery limits R
- S Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
 - Р Sample pH greater than 2.
 - Reporting Detection Limit RĽ

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WO#: 13-Feb-14

1401A07

Client: Western Refining Southwest, Inc.

Project: Injection Well 1-23-2014

				TestCode: EPA Method 8270C: Semivolatiles						
Sample ID mb-11420	,	ype: MBL					8270C: Semi	volatiles		
Client ID: PBW		n ID: 1142 0			RunNo: 1					
Prep Date: 1/27/2014	Analysis D	Date: 1/30/	2014	5	SeqNo: 4	73422	Units: µg/L			
Analyte	Result		PK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	ND	10								
2,6-Dinitrotoluene	ND	10								
luoranthene	ND	10								
luorene	ND	10								
lexachlorobenzene	ND	10								
lexachlorobutadiene	ND	10								
lexachlorocyclopentadiene	ND	10								
lexachloroethane	ND	10								
ndeno(1,2,3-cd)pyrene	ND	10								
sophorone	ND	10								
-Methyinaphthalene	ND	10								
-Methylnaphthalene	ND	10								
Methylphenol	ND	10								
+4-Methylphenol	NÐ	10								
I-Nitrosodi-n-propylamine	ND	10								
I-Nitrosodimethylamine	ND	10								
-Nitrosodiphenylamine	ND	10								
laphthalene	ND	10								
-Nitroaniline	ND	10								
-Nitroaniline	ND	10								
-Nitroaniline	ND	10								
litrobenzene	ND	10								
Nitrophenol	ND	10								
-Nitrophenol	ND	10								
entachlorophenol	ND	20								
henanthrene	ND	[,] 10								
henol	ND	10								
ytene	ND	10								
yridine	ND	10								
,2,4-Trichlorobenzene	ND	10								
,4,5-Trichlorophenol	ND	10								
4,6-Trichlorophenol	ND	10								
Surr: 2-Fluorophenol	120		200.0		60.4	22.7	98			
Surr: Phenol-d5	91		200,0		45.4	23.4	74.9			
Surr: 2,4,6-Tribromophenol	150		200.0		74.9	23.3	111			
Surr: Nitrobenzene-d5	81		100.0		80.7	36.8	111			
Surr: 2-Fluorobiphenyl	77		100.0		76.6	38.3	110			
Sun: 4-Terphenyl-d14	74		100.0		73.9	52.1	116			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- $\ensuremath{\mathbb{S}}$ Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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WO#:

Client: Western Refining Southwest, Inc.

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Project: Injection Well 1-23-2014

Sample ID Ics-11420	SampT	ype: LC	S	Tes	tCode: El	PA Method	8270C: Semi	volatiles		
Client ID: LCSW	Batch	1D: 11	420	F	RunNo: 1	6402				
Prep Date: 1/27/2014	Analysis D	ate: 1/	30/2014	5	SeqNo: 4	73423	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	72	10	100.0	0	72.4	48	101			
4-Chloro-3-methylphenol	130	10	200.0	0	67.2	47.9	109			
2-Chlorophenol	70	10	200.0	0	35.0	40	105			S
1,4-Dichlorobenzene	60	10	100.0	0	60.3	40.8	94.3			
2,4-Dinitrotoluene	63	10	100.0	0	63.2	28.3	131			
N-Nitrosodi-n-propylamine	80	10	100.0	0	79.7	46.2	119			
4-Nitrophenol	16	10	200.0	٥	8.02	10.5	67.9			S
Pentachlorophenol	31	20	200.0	0	15.5	22.4	81.1			S
Phenol	67	10	200.0	0	33.4	21.4	72.9			
Pyrene	66	10	100.0	0	65.9	46.9	109			
1,2,4-Trichlorobenzene	68	10	100.0	٥	67.8	43.1	98.4			
Surr: 2-Fluorophenol	36		200.0		18.0	22.7	98			S
Surr: Phenol-d5	65		200.0		32.3	23.4	74.9			
Surr: 2,4,6-Tribromophenol	72		200.0		36.2	23.3	11 1			
Surr: Nitrobenzene-d5	74		100.0		73.5	36.8	111			
Surr: 2-Fluorobiphenyl	74		100.0		73.9	38.3	110			
Surr: 4-Terphenyl-d14	80		100.0		80.0	52.1	116			
Sample ID mb-11513	SampT	ype: ME	sLK	Tes	tCode: El	PA Method	8270C: Semiv	volatiles		
Client ID: PBW	Batch	ID: 11	513	F	RunNo: 10	6496				
Prep Date: 1/31/2014	Analysis D	ate: 2/	3/2014	5	SeqNo: 4	75097	Units: %REC	\$		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorophenol	110		200.0		54.9	22.7	98			
Surr: Phenol-d5	93		200.0		46.5	23.4	74.9			
Surr: 2,4,6-Tribromophenol	130		200.0		65.6	23.3	111			
Surr: Nitrobenzene-d5	77		100.0		77.3	36.8	111			
Surr: 2-Fluorobiphenyl	71		100.0		70.6	38.3	110			
Surr: 4-Terphenyl-d14	72		100.0		71.6	52.1	116			
			100.0						· · ·	
Sample ID Ics-11513	_	 /pe: LC		Tes			8270C: Semiv	volatiles		
	SampT	/pe: LC: ID: 115	s			PA Method		volatiles	<u></u>	
Sample ID Ics-11513	SampT	ID: 115	S 513	R	tCode: EF	PA Method 6496				
Sample ID Ics-11513 Client ID: LCSW Prep Date: 1/31/2014 Analyte	SampT Batch Analysis D Result	ID: 115	S 513 8/2014	R	tCode: EF tunNo: 16 seqNo: 47 %REC	PA Method 5496 75098 LowLimit	8270C: Semiv Units: %REC HighLimit		RPDLimit	Qual
Sample ID Ics-11513 Client ID: LCSW Prep Date: 1/31/2014	SampT Batch Analysis D	ID: 115 ate: 2/3	S 513 8/2014	R	tCode: EF tunNo: 16 SeqNo: 47	PA Method 6496 75098	8270C: Semix Units: %REC	;	RPDLimit	Qual
Sample ID Ics-11513 Client ID: LCSW Prep Date: 1/31/2014 Analyte	SampT Batch Analysis D Result	ID: 115 ate: 2/3	S 513 3/2014 SPK value	R	tCode: EF tunNo: 16 seqNo: 47 %REC	PA Method 6496 75098 LowLimit 22.7 23.4	8270C: Semiv Units: %REC HighLimit	;	RPDLimit	Qual
Sample ID Ics-11513 Client ID: LCSW Prep Date: 1/31/2014 Analyte Surr: 2-Fluorophenol	SampT Batch Analysis D Result 100	ID: 115 ate: 2/3	S 513 3/2014 SPK value 200.0	R	tCode: EF tunNo: 16 SeqNo: 47 %REC 49.8	PA Method 5496 75098 LowLimit 22.7	8270C: Semix Units: %REC HighLimit 98	;	RPDLimit	Qual
Sample ID Ics-11513 Client ID: LCSW Prep Date: 1/31/2014 Analyte Surr: 2-Fluorophenol Surr: Phenol-d5	SampT Batch Analysis D Result 100 85	ID: 115 ate: 2/3	S 513 3/2014 SPK value 200.0 200.0	R	tCode: EF RunNo: 16 SeqNo: 47 %REC 49.8 42.3	PA Method 6496 75098 LowLimit 22.7 23.4	8270C: Semix Units: %REC HighLimit 98 74.9	;	RPDLimit	Qual

Qualifiers:

Value exceeds Maximum Contaminant Level. *

Е Value above quantitation range

Analyte detected below quantitation limits J

0 RSD is greater than RSDlimit

R RPD outside accepted recovery limits

- S Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank В

Holding times for preparation or analysis exceeded Н

ND Not Detected at the Reporting Limit

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- Sample pH greater than 2. Р
- Reporting Detection Limit RL

13-Feb-14

Hall Environmental Analysis Laboratory, Inc.

Client: Western Refining Southwest, Inc.

Project: Injecti	on Well 1-23-	2014								
Sample ID Ics-11513	SampTy	 /pe; LC	:s	 Tes	tCode: E	PA Method	8270C: Sem	ivolatiles		
Client ID: LCSW	Batch	ID: 11	513	Я	unNo: 1	6496				
Prep Date: 1/31/2014	Analysis Da	ate; 2/	3/2014	s	SeqNo: 4	75098	Units: %RE	C		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	61		100.0		61.4	52.1	116			
Sample ID Icsd-11513	 SampTy	 rpe: LC		Tes	tCode: El	PA Method	8270C: Sem	ivolatiles		
Client ID: LCSS02	Batch	ID: 11	513	F	tunNo: 1	6496				
Prep Date: 1/31/2014	Analysis Da	ite: 2/	3/2014	S	eqNo: 4	75099	Units: %RE	C		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Analyte Surr: 2-Fluorophenol	Result 110	PQL	SPK value 200.0	SPK Ref Val	%REC 54.1	LowLimit 22.7	HighLimit 98	0	RPDLimit0	Qual
Analyte Surr: 2-Fluorophenol Surr: Phenol-d5	· · · · · · · · · · · · · · · · · · ·	PQL		SPK Ref Val						Qual
Sur: 2-Fluorophenol	110	PQL_	200.0	SPK Ref Val	54.1	22.7	98	0	0	Qual
Surr: 2-Fluorophenol Surr: Phenol-d5	110 90	PQL_	200.0 200.0	SPK Ref Val	54.1 44.9	22.7 23.4	98 74.9	0	0	Qual
Surr: 2-Fluorophenol Surr: Phenol-d5 Surr: 2,4,6-Tribromophenol	110 90 160	PQL	200.0 200.0 200.0	SPK Ref Val	54.1 44.9 79.0	22.7 23.4 23.3	98 74.9 111	0 0 0	0 0 0	Qual

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits J
- 0 RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Р Sample pH greater than 2.
- RL Reporting Detection Limit

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WO#:

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Hall Environmental Analysis Laboratory, Inc.

Client: Western Refining Southwest, Inc.

Project:	Injection	Well 1-2	3-2014	1							
Sample iD	MB-11463	Samp	Type: I	MBLK	Tes	tCode: E	PA Method	7470: Mercur	у		
Client ID:	PBW	Bat	ch ID:	11463	F	RunNo: 1	6401				
Prep Date:	1/29/2014	Analysis	Date:	1/30/2014	S	SeqNo: 4	73049	Units: mg/L			
Analyte		Result	PQI	_ SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury		ND	0.0002	20							
Sample ID	LCS-11463	Samp	Туре: І	LCS	Tes	tCode: El	PA Method	7470: Mercur	 У		
Client ID:	LCSW	Bat	ch ID:	11463	F	RunNo: 1	6401				
Prep Date:	1/29/2014	Analysis	Date:	1/30/2014	5	SegNo: 4	73050	Units: mg/L			
Analyte		Result	PQI	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury		0.0047	0.0002	0.005000	0	94.3	80	120			
Sample ID	1401A07-001CMS	Samp	Type: I	MS	Tes	tCode: El	PA Method	7470: Mercur	у		
Client ID:	Injection Well	Bate	ch ID: 1	11463	F	RunNo: 1	6401				
Prep Date:	1/29/2014	Analysis	Date:	1/30/2014	S	SeqNo: 4	73069	Units: mg/L			
Analyte		Result	_ PQI	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Мегсилу		0.0046	0.001	0 0.005000	0	91.0	75	125			
Sample ID	1401A07-001CMS	D Samp	Type: 1	VISD	Tes	tCode: El	PA Method	7470: Mercur	у		
Client ID:	Injection Well	Bate	ch iD: 🖌	1463	F	RunNo: 1	6401				
Prep Date:	1/29/2014	Analysis	Date:	1/30/2014	S	SeqNo: 4	73070	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury		0.0045	0.001	0 0.005000	0	90.1	75	125	1.02	20	

Qualifiers:

* Value exceeds Maximum Contaminant Level.

Value above quantitation range Ε

- l Analyte detected below quantitation limits
- 0 RSD is greater than RSDlimit
- RPD outside accepted recovery limits R
- Spike Recovery outside accepted recovery limits S
- Analyte detected in the associated Method Blank В
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
 - Р Sample pH greater than 2.
 - **Reporting Detection Limit** RL

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WO#: 1401A07

Hall Environmental Analysis Laboratory, Inc.

Client: Western Refining Southwest, Inc.

Project: Injection Well 1-23-2014

Sample ID MB-11432	Samp	Туре: МІ	BLK	Tes	tCode: E	PA 6010B:	Total Recover	able Met	als	
Client ID: PBW	Bate	ch ID: 11	432	F	RunNo: 1	6372				
Prep Date: 1/28/2014	Analysis	Date: 1/	/29/2014	S	SeqNo: 4	72096	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Banum	ND	0.020								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Sodium	ND	1.0								
		1.0								
Sample ID LCS-11432		Type: LC		Tes	Code: El	PA 6010B:	Total Recover	able Meta	 1 \$	<u> </u>
==	Samp				tCode: El		Total Recover	able Meta	als	
Sample ID LCS-11432	Samp	Type: LC :h ID: 11	432	R		6372	Total Recover	able Meta	als	
Sample ID LCS-11432 Client ID: LCSW	Samp Bato	Type: LC :h ID: 11	432 /29/2014	R	unNo: 1 eqNo: 4 %REC	6372		able Meta	a is RPDLimit	Qual
Sample ID LCS-11432 Client ID: LCSW Prep Date: 1/28/2014 Analyte Arsenic	Samp Bato Analysis Result 0.43	Type: LC th ID: 11 Date: 1/ PQL 0.020	432 2 9/2014 SPK value 0.5000	R	unNo: 1 6eqNo: 4 %REC 85.6	6372 72097 LowLimit 80	Units: mg/L HighLimit 120			Qual
Sample ID LCS-11432 Client ID: LCSW Prep Date: 1/28/2014 Analyte Arsenic Barium	Samp Bato Analysis Result 0.43 0.43	Type: LC th ID: 11 Date: 1/ PQL 0.020 0.020	432 29/2014 SPK value 0.5000 0.5000	R S SPK Ref Val	tunNo: 1 ieqNo: 4 %REC 85.6 85.5	6372 72097 LowLimit 80 80	Units: mg/L HighLimit 120 120			Qual
Sample ID LCS-11432 Client ID: LCSW Prep Date: 1/28/2014 Analyte Arsenic	Samp Bato Analysis Result 0.43	Type: LC th ID: 11 Date: 1/ PQL 0.020	432 2 9/2014 SPK value 0.5000	R S SPK Ref Val 0	unNo: 1 6eqNo: 4 %REC 85.6	6372 72097 LowLimit 80 80 80	Units: mg/L HighLimit 120			Qual
Sample ID LCS-11432 Client ID: LCSW Prep Date: 1/28/2014 Analyte Arsenic Barium	Samp Bato Analysis Result 0.43 0.43	Type: LC th ID: 11 Date: 1/ PQL 0.020 0.020	432 29/2014 SPK value 0.5000 0.5000	R S SPK Ref Val 0 0	eqNo: 1 %REC 85.6 85.5 84.3 89.1	6372 72097 LowLimit 80 80	Units: mg/L HighLimit 120 120 120 120			Qual
Sample ID LCS-11432 Client ID: LCSW Prep Date: 1/28/2014 Analyte Arsenic Barium Cadmium	Samp Bato Analysis Result 0.43 0.43 0.43 0.42	Type: LC th ID: 11 Date: 1/ PQL 0.020 0.020 0.0020	432 29/2014 SPK value 0.5000 0.5000 0.5000	R SPK Ref Val 0 0 0	unNo: 1 eqNo: 4 <u>%REC</u> 85.6 85.5 84.3	6372 72097 LowLimit 80 80 80	Units: mg/L HighLimit 120 120 120			Qual
Sample ID LCS-11432 Client ID: LCSW Prep Date: 1/28/2014 Analyte Ansenic Barium Cadmium Calcium	Samp Bato Analysis Result 0.43 0.43 0.42 45	Type: LC th ID: 11 Date: 1/ PQL 0.020 0.020 0.0020 1.0	432 29/2014 SPK value 0.5000 0.5000 0.5000 50.00	R SPK Ref Val 0 0 0 0	eqNo: 1 %REC 85.6 85.5 84.3 89.1	6372 72097 LowLimit 80 80 80 80	Units: mg/L HighLimit 120 120 120 120			Qual
Sample ID LCS-11432 Client ID: LCSW Prep Date: 1/28/2014 Analyte Arsenic Barium Cadmium Calcium Chromium Lead	Samp Bato Analysis Result 0.43 0.43 0.42 45 0.43	Type: LC th ID: 11 Date: 1/ PQL 0.020 0.020 0.0020 1.0 0.0060	432 29/2014 SPK value 0.5000 0.5000 0.5000 50.00 0.5000	R SPK Ref Val 0 0 0 0 0 0	eqNo: 4 %REC 85.6 85.5 84.3 89.1 85.3	6372 72097 LowLimit 80 80 80 80 80	Units: mg/L HighLimit 120 120 120 120 120 120			Qual
Sample ID LCS-11432 Client ID: LCSW Prep Date: 1/28/2014 Analyte Arsenic Barium Cadmium Calcium Chromium Lead Magnesium	Samp Bato Analysis Result 0.43 0.43 0.42 45 0.43 0.42	Type: LC th ID: 11 Date: 1/ PQL 0.020 0.020 0.020 1.0 0.0060 0.0050	432 /29/2014 SPK value 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000	R SPK Ref Val 0 0 0 0 0 0 0	tunNo: 1 ieqNo: 4 %REC 85.6 85.5 84.3 89.1 85.3 84.4	6372 72097 LowLimit 80 80 80 80 80 80 80	Units: mg/L HighLimit 120 120 120 120 120 120 120			Qual
Sample ID LCS-11432 Client ID: LCSW Prep Date: 1/28/2014 Analyte Arsenic Barium Cadmium Calcium Chromium	Samp Bato Analysis 0.43 0.43 0.43 0.42 45 0.43 0.42 45	Type: LC th ID: 11 Date: 1/ PQL 0.020 0.020 0.0020 1.0 0.0050 0.0050 1.0	432 (29/2014 SPK value 0.5000 0.5000 50.00 0.5000 0.5000 50.00 50.00	R SPK Ref Val 0 0 0 0 0 0 0 0 0	wnNo: 1 eqNo: 4 %REC 85.6 85.5 84.3 89.1 85.3 84.4 90.0	6372 72097 LowLimit 80 80 80 80 80 80 80 80	Units: mg/L HighLimit 120 120 120 120 120 120 120 120			Qual
Sample ID LCS-11432 Client ID: LCSW Prep Date: 1/28/2014 Analyte Arsenic Barium Cadmium Calcium Chromium Lead Magnesium Potassium	Samp Bato Analysis 0.43 0.43 0.43 0.42 45 0.43 0.42 45 44	Type: LC th ID: 11 Date: 1/ PQL 0.020 0.020 0.0020 1.0 0.0060 0.0050 1.0 1.0	432 (29/2014 SPK value 0.5000 0.5000 0.5000 0.5000 0.5000 50.00 50.00 50.00	R SPK Ref Val 0 0 0 0 0 0 0 0 0 0 0 0	wnNo: 1 ieqNo: 4 <u>%REC</u> 85.6 85.5 84.3 89.1 85.3 84.4 90.0 88.6	6372 72097 LowLimit 80 80 80 80 80 80 80 80	Units: mg/L HighLimit 120 120 120 120 120 120 120 120 120			Qual

Qualifiers:

* Value exceeds Maximum Contaminant Level.

E Value above quantitation range

- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
 - P Sample pH greater than 2.
 - RL Reporting Detection Limit

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1401A07 *13-Feb-14*

WO#:

Hall Environmental Analysis Laboratory, Inc.

Client: Western Refining Southwest, Inc.

Project:	Injection Well 1-23-2014
r roject.	Injection wen 1-23-2014

Sample ID mb-1	SampTyp	e: MBLK	TestCode: S	M2320B: A	lkalinity			
Client ID: PBW	Batch ID): R16304	RunNo: 1	6304				
Prep Date:	Analysis Date	e: 1/24/2014	SeqNo: 4	70197	Units: mg/L	CaCO3		
Analyte	Result F	PQL SPK value	SPK Ref Val %REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fotal Alkalinity (as CaCO3)	ND	20						
Sample ID Ics-1	SampType	e: LCS	TestCode: S	M2320B: A	Ikalinity	~~~~		
Client ID: LCSW	Batch ID): R16304	RunNo: 1	6304				
Prep Date:	Analysis Date	: 1/24/2014	SeqNo: 4	70198	Units: mg/L	CaCO3		
	D		SPK Ref Val %REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Analyte	Result F	PQL SPK value	SPR Rei Val MREG	COMPUTIN	rugitennit	MILED	IX WLITH	Quai

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDImit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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1401A07 *13-Feb-14*

WO#:

Hall Environmental Analysis Laboratory, Inc.

Client: Western Refining Southwest, Inc.

Project: Injection Well 1-23-2014

Sample ID MB-11406	SampType: MBLK	TestCode: SM2540C M	OD: Total Dissolved Solids
Client ID: PBW	Batch ID: 11406	RunNo: 16349	
Prep Date: 1/27/2014	Analysis Date: 1/28/2014	SeqNo: 471302	Units: mg/L
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLìmit %RPD RPDLimit Qual
otal Dissolved Solids	ND 20.0		
Sample ID LCS-11406	SampType: LCS	TestCode: SM2540C M	OD: Total Dissolved Solids
Client ID: LCSW	Batch ID: 11406	RunNo: 16349	
Prep Date: 1/27/2014	Analysis Date: 1/28/2014	SeqNo: 471303	Units: mg/L
	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD RPDLimit Qual
Analyte	Result FOL SER Value	DINNELVAI JUNEO LOWEIIIII	ingheimin 7014 D 141 Dennin Quan

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
 - P Sample pH greater than 2.
 - RL Reporting Detection Limit

Page 17 of 17

1401A07

WO#:

13-Feb-14

HALL ENVIRONMENTAL ANALYSIS LABORATORY	Hall Environmental A Albug TEL: 505-345-3975 F Website: www.hall	4901 Hawkins M uerque, NM 871 AX: 505-345-41	ve 09 Sam 07	ple Log-In Ch	eck List
Client Name: Western Refining Southw	Work Order Number:	1401A07		RcptNo:	
Received by/date: LM G	1/24/14		. .		· · · · ·
Logged By: Michelle Garcia	1/24/2014 10:15:00 AM		minul Gar	un	
Completed By: Michelle Garcia	1/24/2014 12:54:49 PM		Minus Gan Minus Gan	ua	
Reviewed By: ATO/27/14	(
Chain of Custody					
1. Custody seals intact on sample bottles?		Yes	No 🛄	Not Present 🖌	
2. Is Chain of Custody complete?		Yes 🕢	No	Not Present	
3. How was the sample delivered?		<u>Courier</u>			
Log in					
4. Was an attempt made to cool the samples?		Yes 🗹	No 🗌	na 🗆	
5. Were all samples received at a temperature	of >0° C to 6.0°C	Yes 🗹	No 🛄	NA 🗍	
6. Sample(s) in proper container(s)?		Yes 🗹	No []]		
7. Sufficient sample volume for indicated test(s))?	Yes 🗹	No 🗔		
8. Are samples (except VOA and ONG) properl	y preserved?	Yes 🔽	No []		
9. Was preservative added to bottles?		Yes 🗌	No 🗹	NA 🗔	
10.VOA vials have zero headspace?		Yes 🗹	No 🗌	No VOA Vials 📋	
11. Were any sample containers received broke	n?	Yes 🗀	No ☑	# of preserved	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)		Yes 🗹	No []	for pH:	12 unless noted)
13. Are matrices correctly identified on Chain of	Custody?	Yes 🔽	No	Adjusted	NO/
14. Is it clear what analyses were requested?		Yes 🗹	No 🛄		
15. Were all holding times able to be met? (If no, notify customer for authorization.)		Yes 🗹	No 🛄	Checked by:	
Special Handling (if applicable)					
16. Was client notified of all discrepancies with the	nis order?	Yes 🗌	No 🗌	NA 🗹	
Person Notified:	Date:		and and the second s		
By Whom:	Via:	eMail 📋 Ph	one Fax	iii In Person	
Regarding:					
Client Instructions:			<u> </u>	ا لیرین <u>ہ میں محمد محمد الم</u>	
17. Additional remarks:					
18. <u>Cooler Information</u> Cooler No Temp Cr Condition Se 1 1.2 Good Yes	al Intact Seal No: Se	al Date	Signed By		

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Page 1 of 1

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			stody Record	Turn-Around	Time:					н		LL ∣	E٨	IV.	IR	O	NM	1E	NT	A	L
Client:	Weste	n Refin	ing	X Standard	🗆 Rush					_	_	AL'									
-				Project Name	: Injection	Well						/.haii								•	
Mailing	Address	50 CR	4990	1	1-23-2	2014		49	01 H			1E -						7109	J		
•	Bloom	field. N	M 87413	Project #:	<u></u>		1)5-34				-	•	345					
		632-413		1					·	,			alys	sis F	۲equ	Jest					
email o	Fax#:			Project Mana	iger:	······································	Ę	(Au	ĝ		٩		ΣŢ	3	<u> </u>	- 1			ľ		
QA/QC I	Package:						TMB's (8021)	as o	X	S	Back-up		Na I	S S	8						
X Stan	dard		Level 4 (Full Validation)		····) () 88	9 T	8	Ê		IMS	4 <u>6</u>	ă	2	ļ	ł				5
	er				200-		. WI	ם	10	Ŧ	Ŧ	70S	a.	S.	õ	ļ	~		Corrosivity	ਹ	ੱਮੂ5
X EDU	(Type)		<u> </u>	On Ice: Sample Tem		<u>ロ No</u>	+ 	+ . <u></u> .	GR	4	3	82	als (ĝ	les		δ		Ê	¥	비원
Date	Time	Matrix	Sample Request ID	Container Type and #	Preservativ e Type	HEAL NO.	BTEX + MTBE	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO	TPH (Method 418.1) TDS	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals Ca, Mg, Na, K	Anians (F,CI,NO ₃ ,NO ₂ ,PO ₄ ,SO ₄)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Ignitability	₹	Ec, pH, SO4, Alk, CI	A Bubbles (Y or N)
1-23-4	8:35	H ₂ 0	Injection Well	5-VOA	HCI	-001	T									x					শ্ব
	1	H₂0	Injection Well	1 - liter	Amber	- 001								-1			x				Ð
1		H ₂ O	Injection Well	1-500 ml	Amber	-001	<u>†</u>			x			-+				-1	x			· •
-		H ₂ 0	Injection Well	1-500 ml	Amber	-001	†							-1						x	
		H ₂ 0	Injection Well	1-250 ml	H₂SO₄	-001	1—				x			-+		-†	-				
		H₂0	Injection Well	1-500 ml	HNO ₃	-001	1						x	+							
-		H ₂ 0	Injection Well	1-500 ml	Na OH		<u> </u>						-	<u> </u>	أ ``				x		
		H ₂ 0	Injection Well	1-500 mi	Zn Acutate	$-\frac{-\alpha_{1}}{-\alpha_{1}}$									·						x
		ļ																			
	}	┝────		-}	<u> </u>		┼──			┝─┥		\vdash	-1					┟╌┥	┝╌┥	⁻	┢╍╍┾╼╸
	<u> </u>			┫━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━	<u>}</u>		+	╏───		┝╼┥							_	┟╌─┥	┝╼┥	├	┢╼╉╼
Date: -23-14 Date:	Time: JS/D Time:	Relinquish	ed by: ect Krakow	Received by:	u Maile	Date Time 1/23/14 /510 Date Time	Rer	nark	<u> </u> \$:	L]		<u> </u>	1	J	J			<u></u>		L	<u></u>
1/23/14	1710	CAN	stu hall			01/24/14/1015															
វ	nécessary,	samples subr	nitted to Hall Environmental may be sub	contracted to other	acdredited laboratori	ies. This serves as notice of t	his pos	sibility	. Any	sub-cc	ntract	ed data	a wiil b	e dea	arly no	tated o	on the	analy	tical re	pert.	

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HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

August 15, 2014

Kelly Robinson Western Refining Southwest, Inc. #50 CR 4990 Bloomfield, NM 87413 TEL: (505) 632-4166 FAX (505) 632-3911

RE: Injection Well 7-28-14 3rd QTR

OrderNo.: 1407D12

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 1 sample(s) on 7/29/2014 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to <u>www.hallenvironmental.com</u> or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

andig

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

CLIENT: Western Refining Southwest, In		•	Client Samp	-					
Project: Injection Well 7-28-14 3rd QTR	_		Collection	Date: 7/28/2014 9:30:00 AM					
Lab ID: 1407D12-001	Matrix:	AQUEOUS	Received	Date: 7/29/2014 7:55:00 AM					
Analyses	Result	RL Qual	Units	DF	Date Analyzed	Batch			
EPA METHOD 300.0: ANIONS					Analyst:	LGP			
Chioride	510	25	mg/L	50	8/4/2014 5:04:09 PM	R2036			
Sulfate	41	2.5	mg/L	5	7/29/2014 4:17:43 PM	R2023			
EPA METHOD 7470: MERCURY			Ŭ		Analyst:	MMD			
		0.00000							
Mercury	ND	0.00020	mg/L	1	8/4/2014 2:43:32 PM	14571			
EPA 6010B: TOTAL RECOVERABLE ME	TALS				Analyst:	ELS			
Arsenic	ND	0.020	mg/L	1	8/2/2014 2:09:02 PM	14549			
Barium	0.63	0.020	mg/L	1	8/2/2014 2:09:02 PM	14549			
Cadmium	ND	0.0020	mg/L	1	8/2/2014 2:09:02 PM	14549			
Calcium	480	5.0	mg/L	5	8/2/2014 2:10:49 PM	14549			
Chromium	ND	0.0060	mg/L	1	8/2/2014 2:09:02 PM	14549			
Lead	ND	0.0050	mg/L	1	8/2/2014 2:09:02 PM	14549			
Magnesium	99	1.0	mg/L	1	8/2/2014 2:09:02 PM	14549			
Potassium	36	1.0	mg/L	1	8/2/2014 2:09:02 PM	14549			
Selenium	ND	0.050	mg/L	1	8/2/2014 2:09:02 PM	14549			
Silver	ND	0.0050	mg/L	1	8/2/2014 2:09:02 PM	14549			
Sodium	1100	20	mg/L	20	8/2/2014 3:24:50 PM	14549			
EPA METHOD 8270C: SEMIVOLATILES					Analyst:	DAM			
Acenaphthene	ND	100	µg/L	1	7/31/2014 8:37:47 PM	14520			
Acenaphthylene	ND	100	µg/L	1	7/31/2014 8:37:47 PM	14520			
Aniline	ND	100	µg/L	1	7/31/2014 8:37:47 PM	14520			
Anthracene	ND	100	µg/L	1	7/31/2014 8:37:47 PM	14520			
Azobenzene	ND	100	µg/L	1	7/31/2014 8:37:47 PM	14520			
Benz(a)anthracene	ND	100	µg/L	1	7/31/2014 8:37:47 PM	14520			
Benzo(a)pyrene	ND	100	µg/L	1	7/31/2014 8:37:47 PM	14520			
Benzo(b)fluoranthene	ND	100	µg/L	1	7/31/2014 8:37:47 PM	14520			
Benzo(g,h,i)perylene	NĎ	100	µg/L	1	7/31/2014 8:37:47 PM	14520			
Benzo(k)fluoranthene	ND	100	µg/L	1	7/31/2014 8:37:47 PM	14520			
Benzoic acid	ND	200	µg/L	1	7/31/2014 8:37:47 PM	14520			
Benzył alcohol	ND	100	µg/L	1	7/31/2014 8:37:47 PM	14520			
Bis(2-chloroethoxy)methane	ND	100	µg/L	1	7/31/2014 8:37:47 PM	14520			
Bis(2-chloroethyl)ether	ND	100	µg/L	1	7/31/2014 8:37:47 PM	14520			
Bis(2-chloroisopropyl)ether	ND	100	µg/L	1	7/31/2014 8:37:47 PM	14520			
Bis(2-ethylhexyl)phthalate	ND	100	μg/L	1	7/31/2014 8:37:47 PM	14520			
4-Bromophenyl phenyi ether	ND	100	µg/L	1	7/31/2014 8:37:47 PM	14520			
Butyl benzyl phthalate	ND	100	µg/L	1	7/31/2014 8:37:47 PM	14520			
Carbazole	ND	100	µg/L	1	7/31/2014 8:37:47 PM	14520			
4-Chloro-3-methylphenol	ND	100	µg/L	1	7/31/2014 8:37:47 PM	14520			
4-Chloroaniline Refer to the QC Summary report and	ND	100	µg/L	1	7/31/2014 8:37:47 PM	14			

Qualifiers: * Value exceeds Maximum Contaminant Level.

- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 1 of 20

- P Sample pH greater than 2.
- RL Reporting Detection Limit

					Analytical Report	
		Y			Lab Order 1407D12	
Hall Environmental Ana	lysis Laborate	ory, Inc.			Date Reported: 8/15/20	14
CLIENT: Western Refining Southw	est. Inc.		Client Samp	le ID: Ini	ection Well	
Project: Injection Well 7-28-14 3r	-		-	•	8/2014 9:30:00 AM	
5	•	OUTFOUR				
Lab ID: 1407D12-001	Matrix: A	QUEOUS	Received	Date: //2	9/2014 7:55:00 AM	
Analyses	Result	RL Q	al Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLAT	ILES				Analyst	DAM
2-Chloronaphthalene	ND	100	μg/L	1	7/31/2014 8:37:47 PM	14520
2-Chlorophenol	ND	100	µg/L	1	7/31/2014 8:37:47 PM	14520
4-Chlorophenyl phenyl ether	ND	100	μg/L	1	7/31/2014 8:37:47 PM	14520
Chrysene	ND	100	μg/L	1	7/31/2014 8:37:47 PM	14520
Di-n-butyl phthalate	ND	100	μ g/ L	1	7/31/2014 8:37:47 PM	14520
Di-n-octyl phthalate	ND	100	µg/L	1	7/31/2014 8:37:47 PM	14520
Dibenz(a,h)anthracene	ND	100	μg/L	1	7/31/2014 8:37:47 PM	14520
Dibenzofuran	ND	100	μg/L	1	7/31/2014 8:37:47 PM	14520
1,2-Dichlorobenzene	ND	100	μg/L	1	7/31/2014 8:37:47 PM	14520
1,3-Dichlorobenzene	ND	100	μg/L	1	7/31/2014 8:37:47 PM	14520
1,4-Dichlorobenzene	ND	100	µg/L	1	7/31/2014 8:37:47 PM	14520
3,3 -Dichlorobenzidine	ND	100	μg/L	1	7/31/2014 8:37:47 PM	14520
Diethyl phthalate	ND	100	μg/L	1	7/31/2014 8:37:47 PM	14520
Dimethyl phthalate	ND	100	μg/L	1	7/31/2014 8:37:47 PM	14520
2,4-Dichlorophenol	ND	200	µg/L	1	7/31/2014 8:37:47 PM	14520
2.4-Dimethylphenol	ND	100	μg/L	1	7/31/2014 8:37:47 PM	14520
4,6-Dinitro-2-methylphenol	ND	200	μ g /L	1	7/31/2014 8:37:47 PM	14520
2,4-Dinitrophenol	ND	200	μg/L	1	7/31/2014 8:37:47 PM	14520
2.4-Dinitrotoluene	ND	100	μg/L	1	7/31/2014 8:37:47 PM	14520
2,6-Dinitrotoluene	ND	100	μg/L	1	7/31/2014 8:37:47 PM	14520
Fluoranthene	ND	100	μg/L	1	7/31/2014 8:37:47 PM	14520
Fluorene	ND	100	μg/L	1	7/31/2014 8:37:47 PM	14520
Hexachlorobenzene	ND	100	µg/L	1	7/31/2014 8:37:47 PM	14520
Hexachlorobutadiene	ND	100	μg/L	1	7/31/2014 8:37:47 PM	14520
Hexachlorocyclopentadiene	ND	100	μα\Γ	1	7/31/2014 8:37:47 PM	14520
Hexachioroethane	ND	100	μg/L	1	7/31/2014 8:37:47 PM	14520
Indeno(1,2,3-cd)pyrene	ND	100	μg/L	1	7/31/2014 8:37:47 PM	14520
Isophorone	ND	100	µg/L	1	7/31/2014 8:37:47 PM	14520
1-Methylnaphthalene	ND	100	µg/L	1	7/31/2014 8:37:47 PM	14520
2-Methylnaphthalene	ND	100	μg/L	1	7/31/2014 8:37:47 PM	14520
2-Methylphenol	ND	200	μg/L	1	7/31/2014 8:37:47 PM	14520
3+4-Methylphenol	210	100	μg/L	1	7/31/2014 8:37:47 PM	14520
N-Nitrosodi-n-propylamine	ND	100	μg/L	1	7/31/2014 8:37:47 PM	14520
N-Nitrosodímethylamine	ND	100	μg/L	1	7/31/2014 8:37:47 PM	14520
N-Nitrosodiphenylamine	ND	100	µg/L	1	7/31/2014 8:37:47 PM	14520
Naphthalene	ND	100	⊢ <i>⇒</i> - μg/L	1	7/31/2014 8:37:47 PM	14520
2-Nitroaniline	ND	100	μg/L	1	7/31/2014 8:37:47 PM	14520
3-Nitroaniline	ND	100	μg/L	1	7/31/2014 8:37:47 PM	14520
4-Nitroaniline	ND	100	μg/L	1	7/31/2014 8:37:47 PM	14520

- Qualifiers: * Value exceeds Maximum Contaminant Level.
 - E Value above quantitation range
 - J Analyte detected below quantitation limits
 - O RSD is greater than RSD(imit
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 - S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 2 of 20

- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis	Labora	atory, Ir	ıc.			Lab Order 1407D12 Date Reported: 8/15/20	14
CLIENT: Western Refining Southwest, Inc				lient Samr	le ID: Ini	ection Well	
-			-	-		28/2014 9:30:00 AM	
			~				
Lab ID: 1407D12-001	Matrix:	AQUEOU	s	Received	Date: 7/2	29/2014 7:55:00 AM	
Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILES			-	_		Analyst	: DAM
Nitrobenzene	ND	100		µg/L	1	7/31/2014 8:37:47 PM	14520
2-Nitrophenol	ND	100		μg/L	1	7/31/2014 8:37:47 PM	14520
4-Nitrophenol	ND	100		µg/L	1	7/31/2014 8:37:47 PM	14520
Pentachlorophenol	ND	200		μg/L	1	7/31/2014 8:37:47 PM	14520
Phenanthrene	ND	100		μg/L	1	7/31/2014 8:37:47 PM	14520
Phenol	ND	100		μg/L	1	7/31/2014 8:37:47 PM	14520
Pyrene	ND	100		μg/L	1	7/31/2014 8:37:47 PM	14520
Pyridine	NĎ	100		μg/L	1	7/31/2014 8:37:47 PM	14520
1,2,4-Trichlorobenzene	ND	100		μg/L	1	7/31/2014 8:37:47 PM	14520
2,4,5-Trichlorophenol	ND	100		μg/L	1	7/31/2014 8:37:47 PM	14520
2,4,6-Trichlorophenol	ND	100		μg/L	1	7/31/2014 8:37:47 PM	14520
Surr: 2-Fluorophenol	0	12.1-85.8	s	%REC	1	7/31/2014 8:37:47 PM	14520
Surr: Phenol-d5	õ	17.7-65.8	s	%REC	1	7/31/2014 8:37:47 PM	14520
Surr: 2,4,6-Tribromophenol	Õ	26-138	s	%REC	1	7/31/2014 8:37:47 PM	14520
Surr: Nitrobenzene-d5	0 0	47.5-119	s	%REC	1	7/31/2014 8:37:47 PM	14520
Surr: 2-Fluorobiphenył	0 0	48.1-106	s	%REC	1	7/31/2014 8:37:47 PM	14520
Surr: 4-Terphenyl-d14	ů	44-113	s	%REC	1	7/31/2014 8:37:47 PM	14520
EPA METHOD 8260B: VOLATILES						Analyst	
Benzene	ND	2.0		µg/L	2	7/31/2014 1:41:17 PM	R2029
Toluene	ND	2.0		μg/L	2	7/31/2014 1:41:17 PM	R2029
Ethylbenzene	ND	2.0		μg/L	2	7/31/2014 1:41:17 PM	R2029
Methyl tert-butyl ether (MTBE)	ND	2.0		μg/L	2	7/31/2014 1:41:17 PM	R2029
1,2,4-Trimethylbenzene	ND	2.0		μg/L	2	7/31/2014 1:41:17 PM	R2029
1,3,5-Trimethylbenzene	ND	2.0		μg/L	2	7/31/2014 1:41:17 PM	R2029
1,2-Dichloroethane (EDC)	ND	2.0		μg/L	2	7/31/2014 1:41:17 PM	R2029
1,2-Dibromoethane (EDB)	ND	2.0		μg/L	2	7/31/2014 1:41:17 PM	R2029
Naphthalene	ND	4.0		μg/L	2	7/31/2014 1:41:17 PM	R2029
1-Methylnaphtbalene	ND	8.0		μg/L	2	7/31/2014 1:41:17 PM	R2028
2-Methylnaphthalene	ND	8.0		μg/L	2	7/31/2014 1:41:17 PM	R2028
Acetone	85	20		µg/∟ µg/L	2	7/31/2014 1:41:17 PM	R2028
Bromobenzene	ND	2.0		μց/∟	2	7/31/2014 1:41:17 PM	R2023
Bromodichloromethane	ND	2.0		μg/L	2	7/31/2014 1:41:17 PM	R2028
Bromoform		2.0		μց/∟ μց/Լ	2	7/31/2014 1:41:17 PM	R2029
Bromomethane	ND	2.0 6.0		μց/∟ μց/Լ	2	7/31/2014 1:41:17 PM	R2028
2-Butanone	ND	20		μց/ւ μց/Լ	2	7/31/2014 1:41:17 PM	R2029
Carbon disulfide	ND	20			2	7/31/2014 1:41:17 PM	R2029
Carbon Tetrachloride	ND	2.0		µg/L ug/l	2	7/31/2014 1:41:17 PM	R2029
				µg/L ug/l	2	7/31/2014 1:41:17 PM	R2029
Chlorobenzene	ND	2.0		µg/L vo/l			
Chloroethane	ND	4.0		µg/L	2	7/31/2014 1:41:17 PM	R2029

Qualifiers: * Value exceeds Maximum Contaminant Level.

- E Value above quantitation range
 - J Analyte detected below quantitation limits
 - O RSD is greater than RSDlimit
 - R RPD outside accepted recovery limits
 - S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 3 of 20

- P Sample pH greater than 2.
- RL Reporting Detection Limit

					Lab Order 1407D12	
Hall Environmental Analy	SIS Laborate	Jry, Inc.			Date Reported: 8/15/20	14
CLIENT: Western Refining Southwes	t, Inc.		Client Samp	le ID: Inj	ection Well	
Project: Injection Well 7-28-14 3rd	QTR		Collection	Date: 7/2	28/2014 9:30:00 AM	
Lab ID: 1407D12-001	Matrix: A	QUEOUS	Received	Date: 7/2	9/2014 7:55:00 AM	
Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analyst	DJF
Chloroform	ND	2.0	μg/L	2	7/31/2014 1:41:17 PM	R20298
Chloromethane	ND	6.0	μg/L	2	7/31/2014 1:41:17 PM	R20298
2-Chlorotoluene	ND	2.0	μg/L	2	7/31/2014 1:41:17 PM	R20298
4-Chiorotoluene	ND	2.0	μg/L	2	7/31/2014 1:41:17 PM	R20298
cis-1,2-DCE	NĎ	2.0	μg/L	2	7/31/2014 1:41:17 PM	R20298
cis-1,3-Dichloropropene	ND	2.0	μ g /L	2	7/31/2014 1:41:17 PM	R20298
1,2-Dibromo-3-chloropropane	ND	4.0	µg/L	2	7/31/2014 1:41:17 PM	R20298
Dibromochloromethane	ND	2.0	μg/L	2	7/31/2014 1:41:17 PM	R20298
Dibromomethane	ND	2.0	μg/L	2	7/31/2014 1:41:17 PM	R20298
1.2-Dichlorobenzene	ND	2.0	μg/L	2	7/31/2014 1:41:17 PM	R20298
1,3-Dichlorobenzene	ND	2.0	μg/L	2	7/31/2014 1:41:17 PM	R20298
1,4-Dichlorobenzene	ND	2.0	μg/L	2	7/31/2014 1:41:17 PM	R20298
Dichlorodifluoromethane	ND	2.0	µg/L	2	7/31/2014 1:41:17 PM	R20298
1,1-Dichloroethane	ND	2.0	μg/L	2	7/31/2014 1:41:17 PM	R20298
1,1-Dichloroethene	ND	2.0	μg/L	2	7/31/2014 1:41:17 PM	R20298
1,2-Dichloropropane	ND	2.0	μg/L	2	7/31/2014 1:41:17 PM	R20298
1,3-Dichloropropane	ND	2.0	μg/L	2	7/31/2014 1:41:17 PM	R20298
2,2-Dichloropropane	ND	4.0	μg/L	2	7/31/2014 1:41:17 PM	R20298
1,1-Dichloropropene	ND	2.0	µg/∟	2	7/31/2014 1:41:17 PM	R20298
Hexachlorobutadiene	ND	2.0	µg/L	2	7/31/2014 1:41:17 PM	R20298
2-Hexanone	ND	20	µg/L	2	7/31/2014 1:41:17 PM	R20298
Isopropylbenzene	ND	2.0	µg/L	2	7/31/2014 1:41:17 PM	R20298
4-Isopropyltoluene	ND	2.0	μg/L	2	7/31/2014 1:41:17 PM	R20298
4-Methyl-2-pentanone	ND	20	µg/L	2	7/31/2014 1:41:17 PM	R20298
Methylene Chloride	ND	6.0	μg/L	2	7/31/2014 1:41:17 PM	R20298
n-Butylbenzene	ND	6.0	μg/L	2	7/31/2014 1:41:17 PM	R20298
n-Propylbenzene	ND	2.0	μg/L	2	7/31/2014 1:41:17 PM	R20298
sec-Butylbenzene	ND	2.0	μg/L	2	7/31/2014 1:41:17 PM	R20298
Styrene	ND	2.0	μg/L	2	7/31/2014 1:41:17 PM	R20298
tert-Butylbenzene	ND	2.0	μg/L	2	7/31/2014 1:41:17 PM	R20298
1,1,1,2-Tetrachloroethane	ND	2.0	μg/L	2	7/31/2014 1:41:17 PM	R20298
1,1,2,2-Tetrachloroethane	ND	4.0	μg/L	2	7/31/2014 1:41:17 PM	R20298
Tetrachloroethene (PCE)	ND	2.0	μg/L	2	7/31/2014 1:41:17 PM	R20298
trans-1,2-DCE	ND	2.0	µg/L	2	7/31/2014 1:41:17 PM	R20298
trans-1,3-Dichloropropene	ND	2.0	µg/L	2	7/31/2014 1:41:17 PM	R20298
1,2,3-Trichlorobenzene	ND	2.0	µg/L	2	7/31/2014 1:41:17 PM	R20298
1,2,4-Trichlorobenzene	ND	2.0	μg/L	2	7/31/2014 1:41:17 PM	R20298
1,1,1-Trichloroethane	ND	2.0	μg/L	2	7/31/2014 1:41:17 PM	R20298
1,1,2-Trichloroethane	ND	2.0	μg/L	2	7/31/2014 1:41:17 PM	R20298

Qualifiers: * Value exceeds Maximum Contaminant Level.

- E Value above quantitation range
 - J Analyte detected below quantitation limits
 - O RSD is greater than RSDlimit
 - R RPD outside accepted recovery limits
 - S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 4 of 20

- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysi	s Laborat	tory, Inc.			Lab Order 1407D12 Date Reported: 8/15/20	14
CLIENT: Western Refining Southwest, I Project: Injection Well 7-28-14 3rd QT Lab ID: 1407D12-001	R	AQUEOUS		te: 7/2	jection Well 28/2014 9:30:00 AM 29/2014 7:55:00 AM	
Analyses	Result	RL Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analyst	DJF
Trichloroethene (TCE)	ND	2.0	µg/L	2	7/31/2014 1:41:17 PM	R20298
Trichlorofluoromethane	ND	2.0	µg/L	2	7/31/2014 1:41:17 PM	R20298
1,2,3-Trichloropropane	ND	4.0	µg/L	2	7/31/2014 1:41:17 PM	R20298
Vinyl chloride	ND	2.0	µg/L	2	7/31/2014 1:41:17 PM	R20298
Xylenes, Total	ND	3.0	µg/L	2	7/31/2014 1:41:17 PM	R20298
Surr: 1,2-Dichloroethane-d4	92.4	70-130	%REC	2	7/31/2014 1:41:17 PM	R20298
Surr: 4-Bromofluorobenzene	95.4	70-130	%REC	2	7/31/2014 1:41:17 PM	R20298
Surr: Dibromofluoromethane	100	70-130	%REC	2	7/31/2014 1:41:17 PM	R20298
Surr: Toluene-d8	93.6	70-130	%REC	2	7/31/2014 1:41:17 PM	R20298
SM2510B: SPECIFIC CONDUCTANCE					Analyst:	JRR
Conductivity	1900	0.010	µmhos/cm	1	7/29/2014 12:08:01 PM	R20245
SM4500-H+B: PH					Analyst:	JRR
рH	7.10	1.68 H	pH units	1	7/29/2014 12:08:01 PM	R20245
SM2320B: ALKALINITY					Analyst:	JRR
Bicarbonate (As CaCO3)	220	20	mg/L CaCO3	1	7/29/2014 12:08:01 PM	R20245
Carbonate (As CaCO3)	ND	2.0	mg/L CaCO3	1	7/29/2014 12:08:01 PM	R20245
Total Alkalinity (as CaCO3)	220	20	mg/L CaCO3	1	7/29/2014 12:08:01 PM	R20245
SM2540C MOD: TOTAL DISSOLVED SC	LIDS				Analyst:	KS
Total Dissolved Solids	1380	200 *	mg/L	1	7/30/2014 5:19:00 PM	14475

Analytical Report

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank				
	E Value above quantitation range		н	Holding times for preparation or analysis exceeded				
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	Page 5 of 2			
	0	RSD is greater than RSDlimit	Р	Sample pH greater than 2.	1 age 5 01 2			
	R.	RPD outside accepted recovery limits	RL	Reporting Detection Limit				
	S	Spike Recovery outside accepted recovery limits						

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com 504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	Batch #:	140730036
Address:	4901 HAWKINS NE SUITE D	Project Name:	1407D12
	ALBUQUERQUE, NM 87109		
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number Client Sample ID	140730036-001 1407D12-001E / INJEC	•	oling Date	7/28/2014		Date/Time Received 7/30/2014 12:25 Sampling Time 9:30 AM				
Matrix Comments	Water					-				
Parameter		Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier		
Cyanide (reacti	ive)	ND	mg/L	1	8/12/2014	CRW	SW846 CH7	_		
Flashpoint		>200	۴F		8/5/2014	KFG	EPA 1010			
pН		7.44	ph Units		8/5/2014	АЛ	SM 4500pH-B			
Reactive sulfid	8	ND	mg/L	1	8/1/2014	AJT	SW846 CH7			

Authorized Signature

John Coddington, Lab Manager

MCL EPA's Maximum Contaminant Level

ND Not Detected

PQL Practical Quantitation Limit

This report shall not be reproduced except in full, without the written approval of the laboratory. The results reported relate only to the samples indicated. Soil/solid results are reported on a dry-weight basis unless otherwise noted.

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C595 Cartifications held by Anatek Labs WA: EPA:WA0D169; ID:WA00169; WA:C585; MT:Cert0085; FL(NELAP): E871099

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com 504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	Batch #:	140730036
Address:	4901 HAWKINS NE SUITE D	Project Name:	1407D12
	ALBUQUERQUE, NM 87109		
Attn:	ANDY FREEMAN		

Analytical Results Report

Quality Control Data

Lab Control Sample										
Parameter	LCS Result	units	LCS	Spike	%Røc	AR	%Rec	Prep	Date	Analysis Date
Reactive sulfide	D.16	mg/L	1	0.2	80.0	70)-130	8/1/	2014	8/1/2014
Cyanide (reactive)	0.505	mg/L		0.5	101.0	80	-120	8/12	/2014	8/12/2014
Lab Control Sample Duplicate					<u> </u>					
Parameter	LCSD	Units	LCSD	%Rec	%RP	n 2	AR	Ргер І	Data i	Analysis Date
	Result		Spike	90.0	11.8		% RPD 0-25	8/1/2		8/1/2014
Reactive sulfide	0.18	mg/L	0.2	90.0	11.0		-23	0/1/2		0/1/2014
Matrix Spike							·····			
Sample Number Parameter		Sample Result	MS Result	Unit		MS pike	%Rec	AR %Rec	Prep Date	Analysis Dat
140730036-001 Reactive sulfide		ND	0.22	mg/l	_	0.2	110.0	70-130	8/1/2014	8/1/2014
140730036-001 Cyanide (reactive)		ND	0.919	mg/L	_	1	91.9	80-120		
	<u>. </u>					·				
Matrix Spike Duplicate										
	. MSD		MSD				AR	_		A
Parameter	Result	Units	Spike	%R		RPD	%RPI		p Date	Analysis Date
Cyanide (reactive)	0.906	mg/L	1	90.	6	1.4	0-25		2/2014	8/12/2014
Method Blank										
Parameter		Res	ult	Un	its		PQL	P	ep Date	Analysis Date
Cyanide (reactive)		N	D	ការ)/L		1	8/1	2/2014	8/12/2014
Reactive sulfide		N	D	mç	νL		1	8/	1/2014	8/1/2014

AR Acceptable Range

ND Not Detected

PQL Practical Quantitation Limit

RPD Relative Percentage Difference

Comments:

Certifications held by Anstek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E67893; ID:ID00013; MT:CERT8028; NM: ID00013; OR:ID200001-002; WA:C585 Certifications held by Anstek Labs WA: EPA:WA00159; ID:WA00169; WA:C585; MT:Cert0085; FL(NELAP): E671099

Hall Environmental Analysis Laboratory, Inc.

Result

Result

9.7

ND

Analysis Date: 7/29/2014

SampType: LCS

PQL

Batch ID: R20236

PQL

0.50

Analysis Date: 7/29/2014

SampType: MBLK

Batch ID: R20236

0.50

Client: Western Refining Southwest, Inc. **Project:** Injection Well 7-28-14 3rd QTR Sample ID MB SampType: MBLK Client ID: PBW Batch ID: R20236

Prep Date:

Prep Date:

Sample ID MB

PBW

Client ID:

Prep Date: Analyte Sulfate

Sample ID Client ID: Prep Date: Analyte Sulfate

Sample ID Client ID: Prep Date: Analyte Chloride

Analyte

Sulfate

Sample ID LCS

Client ID: LCSW

Analyte

Sulfate

SPK value SPK Ref Val

10.00

97.4 90 110 TestCode: EPA Method 300.0: Anions

Units: mg/L

HighLimit

Units: mg/L

HighLimit

TestCode: EPA Method 300.0: Anions

TestCode: EPA Method 300.0; Anions

LowLimit

RunNo: 20236

SeqNo: 588153

RunNo: 20236

SeqNo: 588154

RunNo: 20236

%REC

SPK value SPK Ref Val %REC LowLimit

0

					· · · · •				
):	Analysis Date:	7/29/2014	s	eqNo: 58	38211	Units: mg/L			
	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
	ND 0.50)							
LCS	SampType: L	cs	Test	Code: EP	A Method	300.0: Anions	;		
LCSW	Batch ID: R	20236	R	unNo: 20	236				
:	Analysis Date: 7	7/29/2014	S	eqNo: 58	8212	Units: mg/L			
	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
	9.6 0.50) 10.00	0	95.6	90	110			
D MB	SampType: N	IBLK	Test	Code: EP	A Method	300.0: Anions	;		
PBW	Batch ID: R	20363	R	unNo: 20	363				
e:	Analysis Date: 8	3/4/2014	S	eqNo: 59	2146	Units: mg/L			
	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
	ND 0.50)							
									-

Sample ID LCS	SampT	SampType: LCS		Tes	tCode: E	PA Method	S			
Client ID: LCSW	Batc	h ID: R2	0363	F	RunNo: 2	0363				
Prep Date:	Analysis Date: 8/4/2014		S	SeqNo: 592147			Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.2	90	110			

Oualifiers:

Value exceeds Maximum Contaminant Level.

Е Value above quantitation range

- J Analyte detected below quantitation limits
- 0 RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Sample pH greater than 2. P
- Reporting Detection Limit RL

Page 6 of 20

15-Aug-14

Qual

Qual

WO#:

RPDLimit

RPDLimit

%RPD

%RPD

Hall Environmental Analysis Laboratory, Inc.

4.7

0.50

5.000

Client: Western Refining Southwest, Inc. **Project:** Sample ID Client ID:

Qualifiers:

Chloride

- ¥ Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits J
- RSD is greater than RSDlimit 0
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded н
- ND Not Detected at the Reporting Limit
 - Sample pH greater than 2. Р
 - RL **Reporting Detection Limit**

Project: Inje	ction Well 7-28-14 3rd QTR		
Sample ID MB	SampType: MBLK	TestCode: EPA Method 300.0: Anions	
Client ID: PBW	Batch ID: R20363	RunNo: 20363	
Prep Date:	Analysis Date: 8/5/2014	SeqNo: 592208 Units: mg/L	
Analyte	Result PQL SPK value SF	K Ref Val %REC LowLimit HighLimit %RPD	RPDLimit Qual
Chloride	ND 0.50		
Sample ID LCS	SampType: LCS	TestCode: EPA Method 300.0: Anions	
Client ID: LCSW	Batch ID: R20363	RunNo: 20363	
Prep Date:	Analysis Date: 8/5/2014	SeqNo: 592209 Units: mg/L	
Analyte	Result PQL SPK value SP	K Ref Val %REC LowLimit HighLimit %RPD	RPDLimit Qual

93.8

90

110

0

1407D12 15-Aug-14

WO#:

Page 7 of 20

Hall Environmental Analysis Laboratory, Inc.

	Western Refining Southwest, Ind Injection Well 7-28-14 3rd QTR						
Sample ID 5mL rb	Samp'Ty	pe: ME	3LK				
Client ID: PBW	Batch	ID: R2	0230				
Prep Date:	Analysis Da	te: 7/	29/201				
Analyte	Result	PQL	SPK				
Surr: 1.2-Dichlorpethane-d4	91		1				

Client ID: PBW	Batc	Batch ID: R20230 RunNo: 20230				0230				
Prep Date:	Analysis Date: 7/29/2014			SeqNo: 587928			Units: %REC			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	9.1		10.00		91.3	70	130	<u> </u>		
Surr: 4-Bromofluorobenzene	9.3		10.00		93.2	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	9.7		10.00		96.7	70	130			
Sample ID 100ng Ics	SampType: LCS			Tes	TestCode: EPA Method 8260B; VOLATILES					
Client ID: LCSW	Batcl	h ID: R	20230	F	RunNo: 2	0230				
Prep Date:	Analysis I)ate: 7	/29/2014	S	SeqNo: 5	87930	Units: %RE	C		
Arialyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	9.9		10.00		98.6	70	130			
Surr: 4-Bromofluorobenzene	9.5		10.00		95.4	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	9.4		10.00		94.3	70	130		<u>.</u>	<u>.</u>
Sample ID 5ml rb	Samp1	SampType: MBLK			TestCode: EPA Method 8260B; VOLATILES					
Client ID: PBW	Batch	i ID: Ra	20298	RunNo: 20298						
Prep Date:	Analysis D	ate: 7	31/2014	S	SeqNo: 589943					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methyinaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Cost - Taka shlarida										

TestCode: EPA Method 8260B: VOLATILES

Qualifiers:

Chlorobenzene

Carbon Tetrachloride

* Value exceeds Maximum Contaminant Level.

ND

ND

1.0

1.0

Ę Value above quantitation range

J Analyte detected below quantitation limits

0 RSD is greater than RSDlimit

R RPD outside accepted recovery limits

- S Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded Н

ND Not Detected at the Reporting Limit

- Sample pH greater than 2. Р
- Reporting Detection Limit RL

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1407D12 15-Aug-14

WO#:

Client: Western Refining Southwest, Inc.

Project: Injection Well 7-28-14 3rd QTR

Sample ID 5ml rb	SampT	ype: MBLK	Tes	TestCode: EPA Method 8260B: VOLATILES					
Client ID: PBW	Batch	ID: R20298	F	RunNo: -20298					
Prep Date:	Analysis D	ate: 7/31/2014	ક	SeqNo: 589943	Units: µg/L	Units: µg/L			
Analyte	Result	PQL SPK value	e SPK Ref Val	%REC LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Chioroethane	ND	2.0							
Chloroform	ND	1.0							
Chloromethane	ND	3.0							
2-Chlorotoluene	ND	1.0							
f-Chlorotoluene	ND	1.0							
¤is-1,2-DCE	ND	1.0							
¤s-1,3-Dichloropropene	ND	1.0							
1,2-Dibromo-3-chloropropane	ND	2.0							
Dibromochloromethane	ND	1.0							
Dibromomethane	ND	1.0							
1.2-Dichlorobenzene	ND	1.0							
1.3-Dichlorobenzene	ND	1.0							
1,4-Dichlorobenzene	ND	1.0							
Dichlorodifluoromethane	ND	1.0							
,1-Dichloroethane	ND	1.0							
1,1-Dichloroethene	ND	1.0							
,2-Dichloropropane	ND	1.0							
,3-Dichloropropane	ND	1.0							
2,2-Dichloropropane	ND	2.0							
,1-Dichloropropene	ND	1.0							
exachlorobutadiene	ND	1.0							
2.Hexanone	ND	10							
sopropylbenzene	ND	1.0							
Isopropyltoluene	ND	1.0							
Methyl-2-pentanone	ND	10							
Methylene Chloride	ND	3.0							
Butylbenzene	ND	3.0							
N-Propylbenzene	ND	1.0							
ec-Butylbenzene	ND	1.0							
Styrene	ND	1.0							
art-Butylbenzene	ND	1.0							
1,1,2-Tetrachloroethane	ND	1.0							
1,2,2-Tetrachloroethane	ND	2.0							
etrachloroethene (PCE)	ND	1.0							
ans-1,2-DCE	ND	1.0							
ans-1,3-Dichloropropene	ND	1.0							
2,3-Trichlorobenzene	ND	1.0							
,2,4-Trichlorobenzene	ND	1.0							
1,1-Trichloroethane	ND	1.0							

Qualifiers:

* Value exceeds Maximum Contaminant Level.

E Value above quantitation range

- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
 - P Sample pH greater than 2.
- RL Reporting Detection Limit

WO#: 1407D12

15-Aug-14

Client:Western Refining Southwest, Inc.Project:Injection Well 7-28-14 3rd QTR

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Sample ID 5ml rb	Samp	ype: MI	BLK	Tes	TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: R20298			RunNo: 20298							
Prep Date:	Analysis Date: 7/31/2014			SeqNo: 589943 Un			Units: µg/L	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
1,1,2-Trichloroethane	ND	1.0								_	
Trichloroethene (TCE)	ND	1.0									
Trichlorofluoromethane	ND	1.0									
1,2,3-Trichloropropane	ND	2.0									
Vinyi chloride	ND	1.0									
Xyienes, Total	ND	1.5									
Surr: 1,2-Dichloroethane-d4	8.8		10.00		88.2	70	130				
Surr: 4-Bromofluorobenzene	9.9		10.00		98.9	70	130				
Surr: Dibromofluoromethane	10		10.00		102	70	130				
Surr: Toluëne-d8	9.9		10.00		98.9	70	130				
Sample ID 100ng Ics	SampT	ype: LC	:s	Tes	TestCode: EPA Method 8260B: VOLATILES						
Client ID: LCSW	Batch	1D: R2	0298	RunNo: 20298							
						SeqNo: 589945					
Prep Date:	Analysis D	ate: 7/	31/2014	S		39945	Units: µg/L				
Prep Date: Analyte	Analysis D Result	ate: 7/ PQL		SPK Ref Val		39945 LowLimit	Units: µg/L HighLimit	%RPD	RPDLimit	Qual	
	-				SeqNo: 5			%RPD	RPDLimit	Qual	
Analyte	Result	PQL	SPK value	SPK Ref Val	eqNo: 5	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Analyte Benzene	Result 20	PQL 1.0	SPK value 20.00	SPK Ref Val	SeqNo: 5 %REC 102	LowLimit 70	HighLimit 130	%RPD	RPDLimit	Qual	
Analyte Benzene Toluene	Result 20 21	PQL 1.0 1.0	SPK value 20.00 20.00	SPK Ref Val 0 0	SeqNo: 5 %REC 102 107	LowLimit 70 80	HighLimit 130 120	%RPD	RPDLimit	Qual	
Analyte Benzene Toluene Chlorobenzene	Result 20 21 20	PQL 1.0 1.0 1.0	SPK value 20.00 20.00 20.00	SPK Ref Val 0 0 0	SeqNo: 5 %REC 102 107 99.3	LowLimit 70 80 70	HighLimit 130 120 130	%RPD	RPDLimit	Qual	
Analyte Benzene Toluene Chlorobenzene 1,1-Dichloroethene	Result 20 21 20 22	PQL 1.0 1.0 1.0 1.0	SPK value 20.00 20.00 20.00 20.00	SPK Ref Val 0 0 0 0	SeqNo: 5 %REC 102 107 99.3 110	LowLimit 70 80 70 82.6	HighLimit 130 120 130 131	%RPD	RPDLimit	Qual	
Analyte Benzene Toluene Chlorobenzene 1,1-Dichloroethene Trichloroethene (TCE)	Result 20 21 20 22 22 21	PQL 1.0 1.0 1.0 1.0	SPK value 20.00 20.00 20.00 20.00 20.00	SPK Ref Val 0 0 0 0	SeqNo: 5 %REC 102 107 99.3 110 103	LowLimit 70 80 70 82.6 70	HighLimit 130 120 130 131 130	%RPD	RPDLimit	Qual	
Analyte Benzene Toluene Chlorobenzene 1, 1-Dichloroethene Trichloroethene (TCE) Surr: 1,2-Dichloroethane-d4	Result 20 21 20 22 21 9.2	PQL 1.0 1.0 1.0 1.0	SPK value 20.00 20.00 20.00 20.00 20.00 10.00	SPK Ref Val 0 0 0 0	SeqNo: 5 %REC 102 107 99.3 110 103 91.6	LowLimit 70 80 70 82.6 70 70 70	HighLimit 130 120 130 131 130 130	%RPD	RPDLimit	Qual	

Qualifiers:

* Value exceeds Maximum Contaminant Level.

E Value above quantitation range

J Analyte detected below quantitation limits

- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
 - P Sample pH greater than 2.
 - RL Reporting Detection Limit

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WO#: 1407D12

15-Aug-14

Hall Environmental Analysis Laboratory, Inc.

Client: Western Refining Southwest, Inc.

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Project: Injection Well 7-28-14 3rd QTR

nit Qual

Qualifiers:

2,4-Dinitrophenol

* Value exceeds Maximum Contaminant Level.

ND

20

E Value above quantitation range

- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
 - P Sample pH greater than 2.
- RL Reporting Detection Limit

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WO#: 1407D12 15-Aug-14

Client: Western Refining Southwest, Inc.

Project: Injection Well 7-28-14 3rd QTR

Sample ID mb-14520	SampT	ype: MBLK	Tes	tCode: EPA Met	hod 8270C: Semi	volatiles		
Client ID: PBW	Batch	1D: 14520	ፑ	RunNo: 20300				
Prep Date: 7/31/2014		ate: 7/31/2014	ຣ	SeqNo: 590031	Units: µg/L			
Analyte	Result	PQL SPK value	SPK Ref Val	%REC LowLi	mit HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	ND	10						
2,6-Dinitrotoluene	ND	10						
Fluoranthene	ND	10						
Fluorene	ND	10						
Hexachlorobenzene	ND	10						
Hexachlorobutadiene	ND	10						
Hexachlorocyclopentadiene	ND	10			•			
Hexachioroethane	ND	10						
Indeno(1,2,3-cd)pyrene	ND	10						
Isophorone	ND	10						
1-Methylnaphthalene	ND	10						
2-Methylnaphthalene	ND	10						
2-Methylphenol	ND	20						
3+4-Methylphenol	ND	10						
N-Nitrosodi-n-propylamine	ND	10						
N-Nitrosodimethylamine	ND	10						
N-Nitrosodiphenyiamine	ND	10						
Naphthalene	ND	10						
2-Nitroaniline	ND	10						
3-Nitroaniline	ND	10						
4-Nitroaniline	ND	10						
Nitrobenzene	NÐ	10						
2-Nitrophenol	ND	10						
4-Nitrophenol	ND	10						
Pentachlorophenol	ND	20						
Phenanthrene	ND	10						
Phenol	ND	10						
Pyrene	ND	10						
Pyridine	ND	10						
1,2,4-Trichlorobenzene	ND	10						
2,4,5-Trichlorophenol	ND	10						
2,4,6-Trichlorophenol	ND	10				-		
Surr: 2-Fluorophenol	130	200.0		66.7 12	2.1 85.8			
Surr: Phenol-d5	95	200.0		47.4 17	7.7 65.8			
Surr: 2,4,6-Tribromophenol	170	200.0		86.4	26 138			
Surr: Nitrobenzene-d5	84	100.0		83.6 47	7.5 119			
Surr: 2-Fluorobiphenyl	84	100.0			3.1 106			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- $E \qquad \text{Value above quantitation range}$
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- ${\bf B}$ Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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WO#: 1407D12

15-Aug-14

Client: Western Refining Southwest, Inc.

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Project: Injection Well 7-28-14 3rd QTR

Sample ID Ics-14520	SampT	ype: LC	s	Tes	tCode: El	PA Method	8270C: Semi-	volatiles		
Client ID: LCSW	Batch	1D: 14	520	F	RunNo: 2	0300				
Prep Date: 7/31/2014	Analysis D	ate: 7/	31/2014	5	SeqNo: 5	90032	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	87	10	100.0	0	87.0	50.3	109			
4-Chloro-3-methyiphenol	200	10	200.0	Û	99.0	51.2	113			
2-Chlorophenol	190	10	200.0	0	94.9	48.5	10 4			
1,4-Dichlorobenzene	80	10	100.0	0	79.5	39.5	106			
2,4-Dinitrotoluene	82	10	100.0	٥	82.3	45.4	107			
N-Nitrosodi-n-propylamine	91	10	100.0	0	91.0	50.4	119			
4-Nitrophenol	110	10	200.0	0	53.6	15.5	62.2			
Pentachlorophenol	150	20	200.0	0	72.7	23.5	93.5			
Phenol	110	10	200.0	0	54.8	26.8	65.6			
Pyrene	96	10	100.0	0	95.5	54.4	108			
1,2,4-Trichlorobenzene	78	10	100.0	0	78.0	39. 9	106			
Surr: 2-Fluorophenol	140		200.0		72.4	12.1	85.8			
Surr: Phenol-d5	100		200.0		52.5	17.7	65.8			
Surr: 2,4,6-Tribromophenol	170		200.0		87.0	26	138			
Surr: Nitrobenzene-d5	100		100.0		101	47.5	119			
Surr: 2-Fluorobiphenyl	96		100.0		96.0	48.1	106			
Surr: 4-Terphenyl-d14	91		100.0		90.9	44	113			

Sample ID Icsd-14520	SampT	ype: LC	SD	Tes	tCode: E	PA Method	8270C: Semi-	volatiles		
Client ID: LCSS02	Batch	1D: 14	520	F	RunNo: 2	0300				
Prep Date: 7/31/2014	Analysis D	ate: 7/	31/2014	5	SeqNo: 5	90033	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	77	10	100.0	0	76.5	50.3	109	12.8	27.2	
-Chloro-3-methylphenol	190	10	200.0	0	93.8	51.2	113	5.37	25.9	
2.Chlorophenol	170	10	200.0	0	84.4	48.5	104	11.7	22.5	
1,4-Dichlorobenzene	73	10	100.0	0	73.3	39.5	106	8.19	24.6	
4-Dinitrotoluene	73	10	100.0	0	73.1	45.4	107	11.9	25.3	
V-Nitrosodi-n-propylamine	85	10	100.0	0	84.9	50.4	119	6.98	23.6	
Nitrophenol	110	10	200.0	0	52.7	15.5	62.2	1.69	34.7	
² entachtorophenol	150	20	200.0	0	72.9	23.5	93.5	0.275	32.8	
^o henol	100	10	200.0	0	51.6	26.8	65.6	6.05	25.5	
yrene	89	10	100.0	0	88.8	54.4	108	7.31	31.4	
.2,4-Trichlorobenzene	68	10	100.0	Û	68.4	39.9	106	13.1	25.9	
Surr: 2-Fluorophenol	140		200.0		68.8	12.1	85.8	0	0	
Surr: Phenol-d5	110		200.0		53.9	17.7	65.8	0	0	
Surr: 2,4,6-Tribromophenol	170		200.0		86.5	26	138	D	0	
Surr: Nitrobenzene-d5	88		100.0		88.1	47.5	119	0	0	
Surr: 2-Fluorobiphenyl	90		100.0		89.9	48.1	106	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.

E Value above quantitation range

J Analyte detected below quantitation limits

- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

- P Sample pH greater than 2.
- RL Reporting Detection Limit

WO#: 1407D12 15-Aug-14

Client:	Western Refining Southwest, Inc.
Project:	Injection Well 7-28-14 3rd QTR

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					-				
Sample ID Icsd-14520	SampType:	LCSD	Tes	tCode: El	PA Method	8270C: Semi	volatiles		
Client ID: LCSS02	Batch ID:	14520	न	lunNo: 2	0300				
Prep Date: 7/31/2014	Analysis Date:	7/31/2014	S	BegNo: 5	90033	Units: µg/L			
Analyte	Result PQ	L SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sun: 4-Terphenyl-d14	90	100.0		90.0	44	113	0	0	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
 - P Sample pH greater than 2.
 - RL Reporting Detection Limit

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15-Aug-14

WO#: 1407D12

Client:	Western Refining Southwest, Inc.
B 1	

Project: Injection Well 7-28-14 3rd QTR

Sample ID	1407d12-001b dup	SampTyp	e: Dl	JP	Tes	Code:	SM2510B: Sp	pecific Condu	uctance		
Client ID:	Injection Well	Batch II): R 2	20245	R	tunNo:	20245				
Prep Date:		Analysis Dat	a: 7	/29/2014	s	eqNo:	588403	Units: µmho	os/cm		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity		1800	0.010						4.30	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level...
- Value above quantitation range Е
- J Analyte detected below quantitation limits
- 0 RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- В
- Holding times for preparation or analysis exceeded Н
- ND Not Detected at the Reporting Limit
 - Р Sample pH greater than 2.
- RL Reporting Detection Limit

Analyte detected in the associated Method Blank

1407D12

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WO#:

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Client:Western Refining Southwest, Inc.Project:Injection Well 7-28-14 3rd QTR

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Sample ID MB-14571	SampType: MBLK	TestCode: EPA Method	7470: Mercury			
Client ID: PBW	Batch ID: 14571	RunNo: 20345				
Prep Date: 8/4/2014	Analysis Date: 8/4/2014	SeqNo: 591482	Units: mg/L			
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND 0.00020					
					·	
Sample ID LCS-14571	SampType: LCS	TestCode: EPA Method	7470: Mercury		- <u></u>	
•	SampType: LCS Batch ID: 14571	TestCode: EPA Method RunNo: 20345	7470: Mercury		<u>.</u>	
Client ID: LCSW	1 31		7470: Mercury Units: mg/L			
Sample ID LCS-14571 Client ID: LCSW Prep Date: 8/4/2014 Analyte	Batch ID: 14571 Analysis Date: 8/4/2014	RunNo: 20345	Units: mg/L	%RPD	RPDLimit	Qual

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
 - P Sample pH greater than 2.
 - RL Reporting Detection Limit

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WO#: 1407D12

15-Aug-14

Client: Western Refining Southwest, Inc.

Project: Injection Well 7-28-14 3rd QTR

Sample ID MB-14549	Sam	рТуре: М	BLK	Tes	tCode: E	PA 6010B:	Total Recove	rable Meta	als	
Client ID: PBW	Ba	tch ID: 14	549	F	RunNo: 2	0323				
Prep Date: 8/1/2014	Analysis	Date: 8	/2/2014	S	SeqNo: 5	90696	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020		· · · ·						
Barium	NÐ	0.020								
Cadmium	ND	0.0020								
Calcium	' ND	1.0								
Chromium	ND	0.0060								
Lead	NĎ	0.0050								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Sodium	ND	1.0								
Sample ID LCS-14549	Sam	oType: LC	:s	Tes	tCode: E	PA 6010B: `	Total Recover	able Meta	uls	
Client ID: LCSW	Bat	ch ID: 14	549	F	RunNo: 2	0323				
Prep Date: 8/1/2014	Analysis	Date: 8/	2/2014	S	SeqNo: 5	90697	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.50	0.020	0.5000	0	101	80	120	—		
Barium	0.50	0.020	0.5000	0	99.7	80	120			
Cadmium	0.50	0.0020	0.5000	0	99.7	80	120			
Calcium	ND	1.0	50.00	0	0	80	120			S
Chromium	0.50	0.0060	0.5000	0	100	80	120			
Lead	0.50	0.0050	0.5000	0	99.5	80	120			
Magnesium	ND	1.0	50.00	0	0	80	120			S
Potessium	ND	1.0	50.00	0	~	80	120			S
	ND	1.0	00.00	0	0	80	120			0
	0.52	0.050	0.5000	0	105	80 80	120			Ū
Selenium				_						U
Selenium Silver	0.52	0.050	0.5000	0	105	80	120			S
Selenium Silver Sodium Sample ID LCS Cat-1454	0.52 0.085 ND	0.050 0.0050	0.5000 0.1000 50.00	0 0 0	105 84.9 0	80 80 80	120 120	able Meta	ls	
Selenium Silver Sodium	0.52 0.085 ND 19 Samp	0.050 0.0050 1.0	0.5000 0.1000 50.00	0 0 0 Test	105 84.9 0	80 80 80 PA 6010B: 1	120 120 120	able Meta	ls	
Selenium Silver Sodium Sample ID LCS Cat-1454	0.52 0.085 ND 19 Samp Bat	0.050 0.0050 1.0 Type: LC	0.5000 0.1000 50.00 S549	0 0 0 Test	105 84.9 0 Code: El	80 80 80 PA 6010B: 1 0323	120 120 120	able Meta	ls	
Selenium Silver Sodium Sample ID LCS Cat-1454 Client ID: LCSW	0.52 0.085 ND 19 Samp Bat	0.050 0.0050 1.0 Type: LC ch ID: 14	0.5000 0.1000 50.00 :S 549 2/2014	0 0 0 Test	105 84.9 0 Code: El	80 80 80 PA 6010B: 1 0323	120 120 120 Total Recover	able Meta %RPD	ls RPDLimit	
Selenium Silver Sodium Sample ID LCS Cat-1454 Client ID: LCSW Prep Date: 8/1/2014	0.52 0.085 ND I9 Samp Bat Analysis	0.050 0.0050 1.0 DType: LC ch ID: 14 Date: 8/	0.5000 0.1000 50.00 :S 549 2/2014	0 0 Test R S	105 84.9 0 Code: El JunNo: 2 GegNo: 5	80 80 80 PA 6010B: 1 0323 90698	120 120 120 Total Recover Units: mg/L			S
Selenium Silver Sodium Sample ID LCS Cat-1454 Client ID: LCSW Prep Date: 8/1/2014 Analyte	0.52 0.085 ND I9 Samp Bat Analysis Result	0.050 0.0050 1.0 DType: LC ch ID: 14 Date: 8/ PQL	0.5000 0.1000 50.00 :S 549 2/2014 SPK value	0 0 Test R S SPK Ref Val	105 84.9 0 Code: El unNo: 2 GegNo: 5 %REC	80 80 PA 6010B: 1 0323 90698 LowLimit	120 120 120 Fotal Recover Units: mg/L HighLimit			S
Selenium Silver Sodium Sample ID LCS Cat-145 Client ID: LCSW Prep Date: 8/1/2014 Analyte Calcium	0.52 0.085 ND I9 Samp Bat Analysis Result 51	0.050 0.0050 1.0 Type: LC ch ID: 14 Date: 8/ PQL 1.0	0.5000 0.1000 50.00 549 2/2014 SPK value 50.00	0 0 Test R SPK Ref Val 0	105 84.9 0 Code: El unNo: 2 GegNo: 5 %REC 102	80 80 PA 6010B: 7 0323 90698 LowLimit 80	120 120 Total Recover Units: mg/L HighLimit 120			S

Qualifiers:

Value exceeds Maximum Contaminant Level. *

Ę, Value above quantitation range

- J Analyte detected below quantitation limits
- 0 RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit ND
- Р Sample pH greater than 2.
- RL Reporting Detection Limit

Page 17 of 20

1407D12

WO#:

15-Aug-14

Client: Project:	Western R Injection V	•		-					n		
Sample ID	1407d12-001b dup	Samp1	ype: DL	JP	Tes	tCode: SI	M4500-H+B	 ; рН	<u> </u>		
Client ID:	Injection Well	Batci	n ID: R2	0245	F	RunNo: 2	0245				
Prep Date:		Analysis D	Date: 7/	29/2014	S	SeqNo: 5	88388	Units: pH u	nits		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
рH		7.11	1.68								H

 \equiv

Qualifiers:

- Value exceeds Maximum Contaminant Level. *
- Е Value above quantitation range
- Analyte detected below quantitation limits J
- 0 RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank В
- Holding times for prej Н
- ND Not Detected at the Reporting Limit
 - Р Sample pH greater than 2.
- RLReporting Detection Limit

	2	paration	or analysis ex	ceeded
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Page 18 of 20

1407D12 15-Aug-14

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

Client:Western Refining Southwest, Inc.Project:Injection Well 7-28-14 3rd QTR

		· · · · · · · · · · · · · · · · · · ·		
Sample ID mb-1	SampType: MBLK	TestCode: SM2320B: A	Ikalinity	
Client ID: PBW	Batch ID: R20245	RunNo: 20245		
Prep Date:	Analysis Date: 7/29/2014	SeqNo: 588355	Units: mg/L CaCO3	
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual
Total Alkalinity (as CaCO3)	ND 20			
Sample ID Ics-1	SampType: LCS	TestCode: SM2320B: A	Ikalinity	
Client ID: LCSW	Batch ID: R20245	RunNo: 20245		
Prep Date:	Analysis Date: 7/29/2014	SeqNo: 588356	Units: mg/L CaCO3	
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual
Total Alkalinity (as CaCO3)	80 20 80.00	0 100 90	110	
Sample ID mb-2	SampType: MBLK	TestCode: SM2320B: A	ikalinity	
Client ID: PBW	Batch ID: R20245	RunNo: 20245		
Prep Date:	Analysis Date: 7/29/2014	SeqNo: 588376	Units: mg/L CaCO3	
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual
Takel Alkelinik (as C=CO2)	ND 20			
Total Alkalinity (as CaCO3)	NB 20			
Sample ID Ics-2	SampType: LCS	TestCode: SM2320B: A	kalinity	
		TestCode: SM2320B: Al RunNo: 20245	kalinity	
Sample ID Ics-2	SampType: LCS		kalinity Units: mg/L CaCO3	
Sample ID Ics-2 Client ID: LCSW	SampType: LCS Batch ID: R20245 Analysis Date: 7/29/2014	RunNo: 20245	•	RPDLimit Qual

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
 - P Sample pH greater than 2.
 - RL Reporting Detection Limit

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

Client:Western Refining Southwest, Inc.Project:Injection Well 7-28-14 3rd QTR

Sample ID MB-14475	SampType: MBLK	TestCode: SM2540C MOD: Total Dissolved Solids	
Client ID: PBW	Batch ID: 14475	RunNo: 20257	
Prep Date: 7/29/2014	Analysis Date: 7/30/2014	SeqNo: 588640 Units: mg/L	
Analyte	Result PQL SPK value	e SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qu	ual
Total Dissolved Solids	ND 20.0		
=	ND 20.0 SampType: LCS	TestCode: SM2540C MOD: Total Dissolved Solids	
Sample ID LCS-14475		TestCode: SM2540C MOD: Total Dissolved Solids RunNo: 20257	
Sample ID LCS-14475 Client ID: LCSW	SampType: LCS		
	SampType: LCS Batch ID: 14475 Analysis Date: 7/30/2014	RunNo: 20257	ual

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
 - P Sample pH greater than 2.
 - RL Reporting Detection Limit

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WO#: 1407D12

15-Aug-14

ENVIRONMENTAL	Hall Environmental Analysis L 4901 Ha Albuquerque, I TEL: 505-345-3975 FAX: 505- Website: www.hallenvironm	wkins NE NM 87109 Sam 345-4107	ple Log-In Check List
Client Name: Western Refining Southw We	ork Order Number: 1407D1	2	RcptNo: 1
Received by/date: A=07/29/19			
Logged By: Anne Thorne 7/29/	2014 7:55:00 AM	anni Im	
Completed By: Anne Thorne 7/29/	2014	anne Im	
Reviewed By: MG 07/2	9/14		
Chain of Custody	l		•
1. Custody seals intact on sample bottles?	Yes [] No 🗍	Not Present
2. Is Chain of Custody complete?	Yes 🔽	No 🗌	Not Present
3. How was the sample delivered?	Courier		
Log In			
4. Was an attempt made to cool the samples?	Yes 🗹	No 🗆	
5. Were all samples received at a temperature of >0)°C to 6.0°C Yes 🗹	No 🗆	na 🗔
6. Sample(s) in proper container(s)?	Yes 🗹	No 🗌	
7. Sufficient sample volume for indicated test(s)?	Yes 🗹		
8. Are samples (except VOA and ONG) properly pres	served? Yes 🗹		_
9. Was preservative added to bottles?	Yes 🗌) No 🗹	NA 🗌
10.VOA vials have zero headspace?	Yes 🗹) No 🗌	No VOA Viais 🗌
11. Were any sample containers received broken?	· Yes	No 🗹	# of preserved
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes 🗹	No 🗌	for pH:
13. Are matrices correctly identified on Chaln of Custo			Adjusted? NO
14. Is it clear what analyses were requested?	Yes 🗹		Checked by:
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes 🔽	No 🛄	Checked by:

Special Handling (if applicable)

16.V	Vas client notified of all o	liscrepancies with this order?	Yes 🗋	No 🗌	NA 🗹
·	Person Notified:		Date	- Company of the State of the State	
	By Whom:			hone 🗌 Fax 📋	In Person
1	Regarding:				
	Client Instructions:		م مراجع المراجع المراجع الم المراجع الم		

17. Additional remarks:

18. Cooler Information

Ī	Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
	1	1.0	Good	Yes			

Ç	hain-	of-Cu	stody Rec	ord	Turn-Around	Time:											TP	~		a 🗠 1	8.1 ~ T	- 4 1	
Client	Weste	ina)	REGINING	7	Standard	🗆 Rush	-			╞═┥]]											TAL DR'	
	<u></u>				Project Name	:	7-28	-14						.haile	•			•					-
Mailing	Address:	125	5 CR 49	90	Twiez	ionli	el 3rd	STR		490)1 H									109			
RIM	m		VM 8741	(?	Project Name: 7-28-14 Triject ion Well 3nd OTR Project #:		4901 Hawkins NE - Albuquerque, NM 87109 Tel. 505-345-3975 Fax 505-345-4107																
Phone #	#: 50:	5-63	2-4/35	·												sis F							
email o					Project Manager:			(yin	ĝ		4	.	Y	5 ⁴)			T	2	\neg	4	Τ		
QA/QC I	Package:								s (8021)	is oi	ž	S A V A		(s)	र्स्	Š,	Bis			2		Ú,	
Stan			Level 4 (Full \	/alidation)					3) s,	Ŭ	8	F	Back	SIM	्रि	6 0	2 2 2			10.0		Y	
Accredi	-				Sampler: B				TMB'	TPH (Gas only)				8270 SIMS)	2	0 Z	808		_	ي		AH (Î
			۲	<u> </u>		XYes M			+	+	R N			ы 10 10	S	ĝ	es/		Ø	यौ	<u>ل</u> د ۱	đ	W S
	(<u>iype)</u>				Sampleviem	erature			MTB	IB I	B			10	leta	อี	ticid	S	- - -	1	Ŧ	<u>M</u> ,	es ()
Date	Time	Matrix	Sampla Do	auget ID	Container	Preservative	initian Initian		+	≥ +	3015			83	8 8	s(F	Pes	Ξ	(Ser	1	Ē	Ħ	ज़ॾॕ
Dale		WIGULX	Sample Red	questin	Type and #	Туре		erenen Nisteren	BTEX	BTEX + MTBE	TPH 8015B (GRO / DRO / MRO)			PAH's (8310	RCRA 8 Metals Ca, My, Na, K	ligi	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Iguitability Corrosi VII	ea.	1.9	Air Bubbles (Y or N)
7.44	0.7	41. m		<u>ь)</u> Л			A THOMAS IN	<u></u>		<u> </u>	Е		UI.	<u> </u>	<u>~</u>	4	م		<u>- 20</u>	η	벽		<u>* </u>
(<u>-28-14</u>	7:50	#20	Injection	well	3-VOA	······································	5								{		-	× (-+	<u> </u>	-
	├_ <u></u> <u></u>		· [<u>l-liter</u>	amber	0		<u> </u>					<u> </u>					Хļ			\dashv	
	<u>↓ </u>				1-500m		7	<u>v1</u>												X			<u> </u>
	·		<u> </u>		1-500ml		2	<u>ଧା</u>	<u> </u>			X						$ \rightarrow $				X	
					1-250ml	H2 504	7	ral	<u> </u>				X										
					1-500ml	HNO3	~	<u>201</u>							X								
					1-500 ml	NoOH	~	201													X		
					1-500m	Acetate	7	201															X
	<u> </u>									T													
Date:	Time;	Relinquist	ned by:		Received by:	. 1	Date T	me	Re	mark	s:												
-28-14	1452	Roo	ent Krake	on	Vinist	Flipeto	128/M	1452	2												•		
Date:	Time:	Relinquist	ned by:		Received by:	1 1	Date Ti	me															•
128/14	1721	Y Shu	stru Walle		Y Ul	in	07 07	55				•		•									<u> </u>

If necessary samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HALL ENVIRONMENTAL ANALÝSIS LABORATORY

Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

October 23, 2014

Kelly Robinson Western Refining Southwest, Inc. #50 CR 4990 Bloomfield, NM 87413 TEL: (505) 632-4166 FAX (505) 632-3911

RE: Injection Well 4th QTR 10-1-14

OrderNo.: 1410102

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 1 sample(s) on 10/2/2014 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to <u>www.hallenvironmental.com</u> or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

andy

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107 Website: <u>www.hallenvironmental.com</u>

Case Narrative

WO#: 1410102 Date: 10/23/2014

CLIENT:Western Refining Southwest, Inc.Project:Injection Well 4th QTR 10-1-14

Analytical Notes Regarding EPA Method 8260: The injection well sample was diluted due to a foamy matrix.

Hall Environmental Analy	sis Labora	tory, Inc.			Date Reported: 10/23/20)14
CLIENT: Western Refining Southwes Project: Injection Well 4th QTR 10-		(ection Well /1/2014 10:00:00 AM	
Lab ID: 1410102-001	Matrix:	AQUEOUS	Received	Date: 10	/2/2014 6:50:00 AM	
Analyses	Result	RL Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst:	LGP
Chloride	220	10	mg/L	20	10/2/2014 4:07:13 PM	R2164
Sulfate	26	2.5	mg/L	5	10/2/2014 3:54:49 PM	R2164
EPA METHOD 7470: MERCURY				-	Analyst:	
		0.00000			-	
Mercury	ND	0.00020	mg/L	1	10/8/2014 3:02:49 PM	15770
EPA 6010B: TOTAL RECOVERABLE	METALS				Analyst:	ELS
Arsenic	ND	0.020	mg/L	1	10/10/2014 9:26:53 AM	15825
Barium	0.20	0.020	mg/L	1	10/10/2014 9:26:53 AM	15825
Cadmium	ND	0.0020	mg/L	1	10/10/2014 9:26:53 AM	15825
Calcium	110	5.0	mg/L	5	10/10/2014 9:28:28 AM	15825
Chromium	ND	0.0060	mg/L	1	10/10/2014 9:26:53 AM	15825
Lead	ND	0.0050	mg/L	1	10/10/2014 9:26:53 AM	15825
Magnesium	23	1.0	mg/L	1	10/10/2014 9:26:53 AM	15825
Potassium	8.2	1.0	mg/L	1	10/10/2014 9:26:53 AM	15825
Selenium	ND	0.050	mg/L	1	10/10/2014 9:26:53 AM	15825
Silver	ND	0.0050	mg/L	1	10/10/2014 9:26:53 AM	15825
Sodium	220	5.0	mg/L	5	10/10/2014 9:28:28 AM	15825
EPA METHOD 8270C: SEMIVOLATIL	ES				Analyst:	DAM
Acenaphthene	ND	10	µg/L	1	10/9/2014 9:16:21 PM	15747
Acenaphthylene	ND	10	µg/L	1	10/9/2014 9:16:21 PM	15747
Aniline	ND	10	µg/L	1	10/9/2014 9:16:21 PM	1574 7
Anthracene	ND	10	µg/L	1	10/9/2014 9:16:21 PM	15747
Azobenzene	ND	10	µg/L	1	10/9/2014 9:16:21 PM	15747
Benz(a)anthracene	ND	10	µg/L	1	10/9/2014 9:16:21 PM	15747
Benzo(a)pyrene	ND	10	µg/L	1	10/9/2014 9:16:21 PM	15747
Benzo(b)fluoranthene	ND	10	µg/L	1	10/9/2014 9:16:21 PM	15747
Benzo(g,h,i)perylene	ND	10	µg/L	1	10/9/2014 9:16:21 PM	15747
Benzo(k)fluoranthene	ND	10	µg/L	1	10/9/2014 9:16:21 PM	15747
Benzoic acid	ND	40	µg/L	1	10/9/2014 9:16:21 PM	15747
Benzyl alcohol	ND	10	µg/L	1	10/9/2014 9:16:21 PM	15747
Bis(2-chloroethoxy)methane	ND	10	µg/L	1	10/9/2014 9:16:21 PM	15747
Bis(2-chloroethyl)ether	ND	10	µg/L	1	10/9/2014 9:16:21 PM	15747
Bis(2-chloroisopropyl)ether	ND	10	μg/L	1	10/9/2014 9:16:21 PM	15747
Bis(2-ethylhexyl)phthalate	ND	10	µg/L	1	10/9/2014 9:16:21 PM	15747
4-Bromophenyl phenyl ether	ND	10	μg/L °	1	10/9/2014 9:16:21 PM	15747
Butyl benzyl phthalate	ND	10	μg/L	1	10/9/2014 9:16:21 PM	15747
Carbazole	ND	10	µg/L	1	10/9/2014 9:16:21 PM	15747
4-Chloro-3-methylphenol	ND	10	µg/L	1	10/9/2014 9:16:21 PM	15747
4-Chloroaniline	ND	10	µg/L	1	10/9/2014 9:16:21 PM	15747

- Qualifiers: * Value exceeds Maximum Contaminant Level.
 - E Value above quantitation range
 - J Analyte detected below quantitation limits
 - O RSD is greater than RSDlimit
 - R RPD outside accepted recovery limits
 - S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 2 of 18

Analytical Report

- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Ana	lysis Laborat	ory, Inc.			Lab Order 1410102 Date Reported: 10/23/2	014
CLIENT: Western Refining Southv Project: Injection Well 4th QTR 1 Lab ID: 1410102-001			Collection	Date: 10,	ection Well /1/2014 10:00:00 AM /2/2014 6:50:00 AM	
Analyses	Result	RL Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLA	TILES				Analyst	DAM
2-Chloronaphthalene	ND	10	µg/L	1	10/9/2014 9:16:21 PM	15747
2-Chlorophenoi	ND	10	μg/L	1	10/9/2014 9:16:21 PM	15747
4-Chlorophenyl phenyl ether	ND	10	μg/L	1	10/9/2014 9:16:21 PM	15747
Chrysene	ND	10	µg/L	1	10/9/2014 9:16:21 PM	15747
Di-n-butyl phthalate	ND	10	μg/L	1	10/9/2014 9:16:21 PM	15747
Di-n-octyl phthalate	ND	20	μg/L	1	10/9/2014 9:16:21 PM	15747
Dibenz(a,h)anthracene	ND	10	μg/L	1	10/9/2014 9:16:21 PM	15747
Dibenzofuran	ND	10	μg/L	1	10/9/2014 9:16:21 PM	15747
1.2-Dichlorobenzene	ND	10	µg/L	1	10/9/2014 9:16:21 PM	15747
1,3-Dichlorobenzene	ND	10	μg/L	1	10/9/2014 9:16:21 PM	15747
1,4-Dichlorobenzene	ND	10	µg/L	1	10/9/2014 9:16:21 PM	15747
3,3'-Dichlorobenzidíne	ND	10	μg/L	1	10/9/2014 9:16:21 PM	15747
Diethyl phthalate	ND	10	μg/L	1	10/9/2014 9:16:21 PM	15747
Dimethyl phthalate	ND	10	μg/L	1	10/9/2014 9:16:21 PM	15747
2,4-Dichlorophenol	ND	20	μg/L	1	10/9/2014 9:16:21 PM	15747
2,4-Dimethylphenol	ND	10	μαλΓ	1	10/9/2014 9:16:21 PM	15747
4,6-Dinitro-2-methylphenol	ND	20		1	10/9/2014 9:16:21 PM	
2,4-Dinitrophenol	ND	20	µg/L	1	10/9/2014 9:16:21 PM	15747
•		10	μg/L 			15747
2,4-Dinitrotoluene	ND	10	µg/L .	1	10/9/2014 9:16:21 PM	15747
2,6-Dinitrotoluene Fluoranthene	ND		μg/L. 	1	10/9/2014 9:16:21 PM	15747
	ND	10	µg/L	1	10/9/2014 9:16:21 PM	15747
Fluorene	ND	10	μg/L	1	10/9/2014 9:16:21 PM	15747
Hexachlorobenzene	ND	10	µg/L	1	10/9/2014 9:16:21 PM	15747
Hexachlorobutadiene	ND	10	µg/L	1	10/9/2014 9:16:21 PM	15747
Hexachlorocyclopentadiene	ND	10	µg/L	1	10/9/2014 9:16:21 PM	15747
Hexachloroethane	ND	10	µg/L	1	10/9/2014 9:16:21 PM	15747
Indeno(1,2,3-cd)pyrene	ND	10	µg/L	1	10/9/2014 9:16:21 PM	15747
Isophorone	ND	10	µg/L	I	10/9/2014 9:16:21 PM	15747
1-Methylnaphthalene	ND	10	µg/L	1	10/9/2014 9:16:21 PM	15747
2-Methylnaphthalene	ND	10	µg/L	1	10/9/2014 9:16:21 PM	15747
2-Methylphenol	ND	20	μg/L ″	1	10/9/2014 9:16:21 PM	15747
3+4-Methylphenol	ND	10	µg/L	1	10/9/2014 9:16:21 PM	15747
N-Nitrosodi-n-propylamine	ND	10	µg/L	1	10/9/2014 9:16:21 PM	15747
N-Nitrosodimethylamine	ND	10	µg/L	1	10/9/2014 9:16:21 PM	15747
N-Nitrosodiphenylamine	ND	10	µg/L	1	10/9/2014 9:16:21 PM	15747
Naphthalene	ND	10	µg/L	1	10/9/2014 9:16:21 PM	15747
2-Nitroaniline	NĎ	10	µg/L	1	10/9/2014 9:16:21 PM	15747
3-Nitroaniline	ND	10	µg/L	1	10/9/2014 9:16:21 PM	15747
4-Nitroaniline	ND	10	µg/L	1	10/9/2014 9:16:21 PM	15747

- Qualifiers: * Value exceeds Maximum Contaminant Level.
 - E Value above quantitation range
 - J Analyte detected below quantitation limits
 - O RSD is greater than RSDlimit
 - R RPD outside accepted recovery limits
 - S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 3 of 18

Analytical Report

- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis	Labora	atory, Inc.			Analytical Report Lab Order 1410102 Date Reported: 10/23/2014				
CLIENT: Western Refining Southwest, Inc Project: Injection Well 4th QTR 10-1-14 Lab ID: 1410102-001		AQUEOUS		Date: 10	ection Well /1/2014 10:00:00 AM /2/2014 6:50:00 AM				
Analyses	Result	RL Qua	Units	DF	Date Analyzed	Batch			
EPA METHOD 8270C: SEMIVOLATILES					Analyst	: DAM			
Nitrobenzene	ND	10	μg/L	1	10/9/2014 9:16:21 PM	15747			
2-Nitrophenol	ND	10	µg/L	1	10/9/2014 9:16:21 PM	15747			
4-Nitrophenol	ND	10	. – µg/L	1	10/9/2014 9:16:21 PM	15747			
Pentachlorophenol	ND	20	μg/L	1	10/9/2014 9:16:21 PM	15747			
Phenanthrene	ND	10	μg/L	1	10/9/2014 9:16:21 PM	15747			
Phenol	ND	10	µg/L	1	10/9/2014 9:16:21 PM	15747			
Pyrene	ND	10	µg/L	1	10/9/2014 9:16:21 PM	15747			
Pyridine	ND	10	µg/L	1	10/9/2014 9:16:21 PM	15747			
1.2.4-Trichlorobenzene	ND	10	μg/L	1	10/9/2014 9:16:21 PM	15747			
2,4,5-Trichlorophenol	ND	10	µg/L	1	10/9/2014 9:16:21 PM	15747			
2,4,6-Trichlorophenol	ND	10	μ g /L	1	10/9/2014 9:16:21 PM	15747			
Surr: 2-Fluorophenol	59.4	12.1-85.8	%REC	1	10/9/2014 9:16:21 PM	15747			
Surr: Phenol-d5	52.8	17.7-65.8	%REC	1	10/9/2014 9:16:21 PM	15747			
Surr: 2,4,6-Tribromophenol	83.8	26-138	%REC	1	10/9/2014 9:16:21 PM	15747			
Surr: Nitrobenzene-d5	76.3	47,5-119	%REC	1	10/9/2014 9:16:21 PM	15747			
Surr: 2-Fluorobiphenyl	68.0	48.1-106	%REC	1	10/9/2014 9:16:21 PM	15747			
Surr: 4-Terphenyl-d14	69.3	44-113	%REC	1	10/9/2014 9:16:21 PM	15747			
EPA METHOD 8260B: VOLATILES					Analyst				
Benzene	ND	5.0	րց/Լ	5	10/3/2014 10:52:10 PM				
Toluene	ND	5.0	μg/L	5	10/3/2014 10:52:10 PM				
Ethylbenzene	ND	5.0	μg/L	5	10/3/2014 10:52:10 PM				
Methyl tert-butyl ether (MTBE)	ND	5.0	μg/L	5	10/3/2014 10:52:10 PM				
1,2,4-Trimethylbenzene	ND	5.0	μg/L	5	10/3/2014 10:52:10 PM				
1,3,5-Trimethylbenzene	ND	5.0	μg/L	5	10/3/2014 10:52:10 PM				
1,2-Dichloroethane (EDC)	ND	5.0	μα/Γ	5	10/3/2014 10:52:10 PM	-			
1,2-Dibromoethane (EDB)	ND	5.0	µg/L	5	10/3/2014 10:52:10 PM				
Naphthalene	ND	10	μα/L	5	10/3/2014 10:52:10 PM				
1-Methylnaphthalene	ND	20	μg/L	5	10/3/2014 10:52:10 PM				
2-Methylnaphthalene	ND	20	µg/L	5	10/3/2014 10:52:10 PM				
Acetone	120	50	µg/L	5	10/3/2014 10:52:10 PM				
Bromobenzene	ND	5.0	μg/L	5	10/3/2014 10:52:10 PM				
Bromodichloromethane	ND	5.0	µg/L	5	10/3/2014 10:52:10 PM				
Bromoform	ND	5.0	μg/L	5	10/3/2014 10:52:10 PM				
Bromomethane	ND	15	μg/L	5	10/3/2014 10:52:10 PM				
2-Butanone	ND	50	µg/L	5	10/3/2014 10:52:10 PM				
Carbon disulfide	ND	50	µg/L	5	10/3/2014 10:52:10 PM				
Carbon Tetrachloride	ND	5.0	µg/L	5	10/3/2014 10:52:10 PM				
Chlorobenzene	ND	5.0	μg/L	5	10/3/2014 10:52:10 PM				
Chloroethane	ND	10	μg/L	5	10/3/2014 10:52:10 PM				

- Qualifiers: * Value exceeds Maximum Contaminant Level.
 - E Value above quantitation range
 - J Analyte detected below quantitation limits
 - O RSD is greater than RSDlimit
 - R RPD outside accepted recovery limits
 - S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 4 of 18
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Er	vironmental Ana		Lab Order 1410102 Date Reported: 10/23/2014				
CLIENT: Project: Lab ID:	Western Refining Southw Injection Well 4th QTR 1 1410102-001			Collection	Date: 10.	ection Well /1/2014 10:00:00 AM /2/2014 6:50:00 AM	
Analyses		Result	RL Qual	Units	DF	Date Analyzed	Batch
EPA MET	HOD 8260B: VOLATILES					Analyst:	RAA
Chlorofor	m	ND	5.0	µg/L	5	10/3/2014 10:52:10 PM	R2165:
Chlorome		ND	15	µg/L	5	10/3/2014 10:52:10 PM	
2-Chlorot		ND	5.0	⊭9/L	- 5	10/3/2014 10:52:10 PM	
4-Chlorot		ND	5.0	µg/L	5	10/3/2014 10:52:10 PM	
cis-1,2-D		ND	5.0	⊨s-− µg/L	5	10/3/2014 10:52:10 PM	
	ichloropropene	ND	5.0	µg/L	5	10/3/2014 10:52:10 PM	
	mo-3-chloropropane	ND	10	⊢s µg/L	5	10/3/2014 10:52:10 PM	
	chloromethane	ND	5.0	μg/L	5	10/3/2014 10:52:10 PM	
Dibromor		ND	5.0	µg/L	5	10/3/2014 10:52:10 PM	
	orobenzene	ND	5.0	μg/L	5	10/3/2014 10:52:10 PM	
-	orobenzene	ND	5.0	μg/L	5	10/3/2014 10:52:10 PM	
-	orobenzene	ND	5.0	μց/∟	5	10/3/2014 10:52:10 PM	
•	lifluoromethane	ND	5.0	քց/∟ µg/L	5	10/3/2014 10:52:10 PM	
	proethane	ND	5.0		5	10/3/2014 10:52:10 PM	
-	proethene		5.0	µg/L µg/l	5	10/3/2014 10:52:10 PM	
-	propropane	ND ND		µg/L	5	10/3/2014 10:52:10 PM	
	oropropane		5.0 5.0	µg/L.	5	10/3/2014 10:52:10 PM	
-	· ·	ND		µg/L uo/l			
	propropane	ND	10	µg/L	5	10/3/2014 10:52:10 PM	
	propropene	ND	5.0 5.0	µg/L	5	10/3/2014 10:52:10 PM	
	robutadiene	ND	5.0	µg/L	5	10/3/2014 10:52:10 PM	
2-Hexano		ND	50	µg/L	5	10/3/2014 10:52:10 PM	
Isopropyll		ND	5.0	µg/L	5	10/3/2014 10:52:10 PM	
4-Isoprop		ND	5.0	µg/L	5	10/3/2014 10:52:10 PM	
	2-pentanone	ND	50	µg/L	5	10/3/2014 10:52:10 PM	
Methylene		ND	15	µg/L	5	10/3/2014 10:52:10 PM	
n-Butylbe		ND	15	µg/L	5	10/3/2014 10:52:10 PM	
n-Propylb		ND	5.0	µg/L	5	10/3/2014 10:52:10 PM	
sec-Butyll	benzene	ND	5.0	µg/L	5	10/3/2014 10:52:10 PM	
Styrene		ND	5.0	µg/L	5	10/3/2014 10:52:10 PM	
tert-Butyl		ND	5.0	µg/L	5	10/3/2014 10:52:10 PM	
	etrachloroethane	ND	5.0	µg/L	5	10/3/2014 10:52:10 PM	
	etrachloroethane	ND	10	µg/L	5	10/3/2014 10:52:10 PM	
	roethene (PCE)	ND	5.0	µg/L	5	10/3/2014 10:52:10 PM	
trans-1,2-		ND	5.0	µg/L	5	10/3/2014 10:52:10 PM	
	Dichloropropene	ND	5.0	µg/L,	5	10/3/2014 10:52:10 PM	
	hlorobenzene	ND	5.0	µg/L	5	10/3/2014 10:52:10 PM	
	hlorobenzene	ND	5.0	µg/L	5	10/3/2014 10:52:10 PM	
	hloroethane	ND	5.0	µg/L	5	10/3/2014 10:52:10 PM	
1,1,2-Trici	hloroethane	ND	5.0	µg/L	5	10/3/2014 10:52:10 PM	R21653

Qualifiers: * Value exceeds Maximum Contaminant Level.

- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank

Analytical Report

- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 5 of 18
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Client Sample Collection Da	ID: Inj	action Well	
S Received Da		/1/2014 10:00:00 AM /2/2014 6:50:00 AM	
Qual Units	DF	Date Analyzed	Batch
=		Analyst:	RAA
μg/L	5	10/3/2014 10:52:10 PM	R21653
µg/L	5	10/3/2014 10:52:10 PM	R21653
µg/L	5	10/3/2014 10:52:10 PM	R21653
µg/L	5	10/3/2014 10:52:10 PM	R21653
μg/L	5	10/3/2014 10:52:10 PM	R21653
%REC	5	10/3/2014 10:52:10 PM	R21653
%REC	5	10/3/2014 10:52:10 PM	R21653
%REC	5	10/3/2014 10:52:10 PM	R21653
%REC	5	10/3/2014 10:52:10 PM	R21653
		Analyst:	JRR
µmhos/cm	1	10/6/2014 5:51:56 PM	R21715
		Analyst:	JRR
H pH units	1	10/6/2014 5:51:56 PM	R21715
		Analyst:	JRR
mg/L CaCO3	1	10/6/2014 5:51:56 PM	R21715
mg/L CaCO3	1	10/6/2014 5:51:56 PM	R21715
mg/L CaCO3	1	10/6/2014 5:51:56 PM	R21715
		Analyst:	KS
* mg/L	1	10/8/2014 4:42:00 PM	15759
	μg/L μg/L μg/L μg/L %REC %REC %REC %REC μmhos/cm Η pH units mg/L CaCO3 mg/L CaCO3 mg/L CaCO3	μg/L 5 μg/L 5 μg/L 5 μg/L 5 μg/L 5 μg/L 5 %REC 5 µmhos/cm 1 H pH units 1 mg/L CaCO3 1 mg/L CaCO3 1	Analyst: $\mu g/L$ 510/3/2014 10:52:10 PM $\% REC$ 510/3/2014 10:52:10 PM $\mu mhos/cm$ 110/6/2014 5:51:56 PM $\mu mhos/cm$ 110/6/2014 5:51:56 PM $M g/L CaCO3$ 110/6/2014 5:51:56 PM $mg/L CaCO3$ 110/6/2014 5:51:56 PM $mg/L CaCO3$ 110/6/2014 5:51:56 PM $M alyst:$ $mg/L CaCO3$ 1 $M alyst:$ $M alyst:$

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Meth	od Blank
	Е	Value above quantitation range	Н	Holding times for preparation or analys	is exceeded
0 I	J	Analyte detected below quantitation limits ND Not		Not Detected at the Reporting Limit	Page 6 of 18
	RSD is greater than RSDlimit	Р	Sample pH greater than 2.	rageouri	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	Spike Recovery outside accepted recovery limits			•

Hall Environmental Analysis Laboratory, Inc.

Analytical Report Lab Order 1410102 Date Reported: 10/23/2014

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Anatek Labs, Inc.

1282 Álturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com 504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB Bat	ch #: 141003043	
Address: 4901 HAWKINS NE SUITE D Pro	ject Name: 1410102	
ALBUQUERQUE, NM 87109		
Attn: ANDY FREEMAN		

Analytical Results Report

Sample Number Client Sample ID	141003043-001 1410102-001E / INJE	-	oling Date	10/1/2014		Time Receiv pling Time	ed 10/3/2014 10:00 AM	1:30 PM
Matrix Comments	Water	Sam	ole Location	ı				
Parameter		Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide (reacti	V9)	ND	mg/L	1	10/15/2014	CRW	SW846 CH7	
Flashpoint		>200	۴F		10/15/2014	KFG	EPA 1010	
Hq		8.82	ph Units		10/6/2014	KJS	SM 4500pH-B	
Reactive sulfid	e	3.01	mg/L	1	10/15/2014	HSW	SW848 CH7	

Authorized Signature

John Coddingtoy, Lab Manager

MCL EPA's Maximum Contaminant Level

ND Not Detected

PQL Practical Quantitation Limit

This report shall not be reproduced except in full, without the written approval of the laboratory. The results reported relate only to the samples indicated. Soli/solid results are reported on a dry-weight basis unless otherwise noted.

Certifications he'd by Anatek Labs ID: EPA:ID00013; A2:0701; CO:ID00013; FL(NELAP):E87593; ID:ID00013; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C598 Certifications held by Anatek Lebs WA: EPA:WA00169; ID:WA00169; WA:C598; MT:Cert0025; FL(NELAP): E871099

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Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com 504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Parameter	i CS Result Lini	le I CS Snike %Rec	AR %Rec	Pren Date	Analysis Date
Lab Control S	Sample				
	Analytical Re Quality Co	esults Report . Introl Data			
Attn:	ANDY FREEMAN				
	ALBUQUERQUE, NM 87109			,	
Address:	4901 HAWKINS NE SUITE D	Project N	ame: 14	10102	
Client:	HALL ENVIRONMENTAL ANALYSIS L	AB Batch #:	14	1003043	

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Reactive sulfide	0.180	mg/L	0.2	90.0	70-130	10/15/2014	10/15/2014
Cyanide (reactive)	0.519	mg/L	0.5	103.8	80-120	10/15/2014	10/15/2014
	<u></u>						

Matrix Splke									·	
Sample Number 141003043-001 141003043-001	Parameter Reactive sulfide Cyanide (reactive)		Sample Result 3.01 ND	MS Result · 3.77 2.41	Units mg/L mg/L	MS Spike 0.767 2.5	% Røc 99.1 96.4	AR %Rec 70-130 80-120	Prep Date 10/15/2014 10/15/2014	10/15/2014
							·			
Matrix Spike D	upiicate	MSD		MSD			AR	÷		
Parameter		Result	Units	Spike	%Rec	·%RPD	%RPI) Pre	p Date	Analysis Date
Cyanide (reactive)	·	2.41	mg/L	2.5	96.4	0.0	0-25	10/1	5/2014	10/15/2014
Method Blank					<u></u>			,		
Parameter			Re	sult	Units		PQL	Pr	rep Date	Analysis Date
Cyanide (reactive)			1	٧D	mg/L		t	10/	15/2014	10/15/2014
Reactive sulfide				D	mg/L		1	10/	15/2014	10/15/2014

AR Acceptable Range

ND Not Detected

PQL Practical Quantitation Limit

RPD Relative Percentage Difference

Comments:

Certifications held by Artatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP);E87893; ID:ID00013; MT:CERT0028; Ni/: ID00013; OR:ID200001-002; WA:C595 Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C565; MT:Cent0096; FL(NELAP): E871099

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

Client: Project:	Western Refining S Injection Well 4th		,							
Sample ID MB	Samp`	fype: MI	BLK	Tes	tCode: E	PA Method	300.0: Anion	s		
Client ID: PBW	Batc	h ID: R2	1640	F	RunNo: 2	1640				
Prep Date:	Analysis (Date: 1	0/2/2014	5	SeqNo: 6	34799	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								
Sample ID LCS	Samp1	ype: LC	s	Tes	tCode: E	PA Method	300.0: Anion	5		
Client ID: LCSW	Batci	h ID: R2	1640	F	RunNo: 2	1640				
Prep Date:	Analysis (ate: 10	0/2/2014	5	SeqNo: 6	34800	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Quai
Chloride	4.7	0.50	5.000	0	94.0	90	110			
Sulfate	9.7	0.50	10.00	0	96.8	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- 0 RSD is greater than RSDlimit
- $R = RPD \ \text{outside accepted recovery limits}$
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
 - P Sample pH greater than 2.
 - RL Reporting Detection Limit

Page 7 of 18

1410102 23-Oct-14

Client: Western Refining Southwest, Inc.

Project: Injection Well 4th QTR 10-1-14

Sample ID 5ml-rb	SampT	ype: ME	BLK	Tes	tCode: E	PA Method	8260B: VOL	ATILES		
Client ID: PBW	Batch	n ID: R2	1653	F	RunNo: 2	1653				
Prep Date:	Analysis D)ate: 10)/3/2014	S	SeqNo: 6	36225	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methyinaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
1-Chlorotoluene	ND	1.0								
is-1,2-DCE	ND	1.0								
is-1,3-Dichloropropene	ND	1.0								
2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1,0								
,2-Dichlorobenzene	ND	1.0								
,3-Dichlorobenzene	ND	1.0								
,4-Dichlorobenzene	ND	1.0								
)ichlorodifluoromethane	ND	1.0								
,1-Dichloroethane	ND	1.0								
,1-Dichloroethene	ND	1.0								
,2-Dichloropropane	ND	1.0								
,3-Dichloropropane	ND	1.0								
· FILE-										

Qualifiers:

2,2-Dichloropropane

* Value exceeds Maximum Contaminant Level.

ND

2.0

E Value above quantitation range

- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
 - P Sample pH greater than 2.
 - RL Reporting Detection Limit

Page 8 of 18

1410102 23-Oct-14

Client: Western Refining Southwest, Inc.

-

Project: Injection Well 4th QTR 10-1-14

				TestCode: EPA Method 8260B; VOLATILES						<u> </u>
Sample ID 5ml-rb	,	ype: M					8260B: VOL	ATILES		
Client ID: PBW	Batch	h ID: R2	21653	F	RunNo: :	21653				
Prep Date:	Analysis É	Date: 1	0/3/2014	ę	SeqNo: 6	36225	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
lsopropylbenzene	ND	1.0								
4-Isopropyitoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	8.0		10.00		80.4	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	8.0		10.00		80.5	70	130			
Surr: Toluene-d8	8.9		10.00		89.4	70	130			
Sample ID 100ng Ics	SampT	ype: LC	s	Tes	tCode: E	PA Method	8260B: VOL	ATILES		
Client ID: LCSW	Batch	1D: R2	1653	R	RunNo: 2	1653				
Prep Date:	Analysis D	ate: 10	/3/2014	s	SeqNo: 6	36227	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit_	Qual
Benzene	19	1.0	20.00	0	96.4	70	130			
Toluene	20	1.0	20.00	0	98.8	80	120			
Chlorobenzene	20	1.0	20.00	0	97.9	70	130			
nlorobenzene	20	1.0	20.00	0	97.9	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

E Value above quantitation range

- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- $R = RPD \ \text{outside accepted recovery limits}$
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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1410102 23-Oct-14

Client: Western Refining Southwest, Inc.

Project: Injection Well 4th QTR 10-1-14

Sample ID 100ng Ics	SampT	ype: LC	S	Tes	ATILES					
Client ID: LCSW	Batcl	n ID: R2	1653	F	RunNo: 2	1653				
Prep Date:	Analysis E)ate: 10)/3/2014	S	SeqNo: 6	36227	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	21	1.0	20.00	0	105	82.6	131			
Trichloroethene (TCE)	19	1.0	20.00	0	96.9	70	130			
Surr: 1,2-Dichloroethane-d4	8.5		10.00		84.9	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		97.7	70	130			
Surr: Dibromofluoromethane	8.0		10.00		79.7	70	130			
Surr: Toluene-d8	9.1		10.00		91.1	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
 - P Sample pH greater than 2.
 - RL Reporting Detection Limit

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1410102

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

Client: Western Refining Southwest, Inc.

Project: Injection Well 4th QTR 10-1-14

Sample ID mb-15747	SampType: MBLK TestCode: EPA Method 8270C: Semivolatiles									
Client ID: PBW	-	ID: 157			RunNo: 21		01/00, 00m	· viatico		
1							11-11-11			
Prep Date: 10/7/2014	Analysis D	ate: 10	/9/2014	5	SegNo: 64	u/84	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acehaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Azobenzene	ND	10								
Benz(a)anthracene	ND	10								
Benzo(a)pyrene	ND	10								
Benzo(b)fluoranthene	ND	10								
Benzo(g,h,i)perylene	ND	10								
Be⊓zo(k)fluoranthene	ND	10								
Benzoic acid	ND	40								
Benzyl alcohol	ND	10								
Bis(2-chloroethoxy)methane	ND	10								
Bis(2-chloroethyl)ether	ND	10								
Bis(2-chloroisopropyl)ether	ND	10								
Bis(2-ethylhexyl)phthalate	ND	10								
4-Bromophenyl phenyl ether	ND	10								
Butyl benzyl phthalate	ND	10								
Carbazole	ND	10								
4-Chioro-3-methylphenol	ND	10								
4-Chloroaniline	ND	10								
2-Chioronaphthalene	ND	10								
2-Chiorophenol	ND	10								
4-Chlorophenyl phenyl ether	ND	10								
Chrysene	ND	10								
Di-n-butyl phthalate	ND	10								
Di-n-octyl phthalate	ND	20								
Dibenz(a,h)anthracene	ND	10								
Dibenzofuran	ND	10								
1,2-Dichlorobenzene	ND	10								
1,3-Dichlorobenzene	ND	10								
1,4-Dichlorobenzene	ND	10								
3,3'-Dichlorobenzidine	ND	10		•						
Diethyl phthalate	ND	10								
Dimethyl phthalate	ND	10								
2,4-Dichlorophenol	. ND	20								
2,4-Dimethylphenol	ND	10								
4,6-Dinitro-2-methylphenol	ND	20								

Qualifiers:

2,4-Dinitrophenol

* Value exceeds Maximum Contaminant Level.

ND

20

- E Value above quantitation range
- J Analyte detected below quantitation limits
- 0 RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
 - P Sample pH greater than 2.
 - RL Reporting Detection Limit

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23-Oct-14

1410102

Client: Western Refining Southwest, Inc.

-

Project: Injection Well 4th QTR 10-1-14

Sample ID mb-15747	SampT	ype: MBLK	TestCode: EPA Method 8270C: Semivolatiles						
Client ID: PBW	Batch	n ID: 15747	R	unNo: 21	803				
Prep Date: 10/7/2014	Analysis D	ate: 10/9/2014	s	eqNo: 64	0784	Units: µg/L			
Analyte	Result	PQL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	ND	10			_				
2,6-Dinitrotoluene	ND	10							
Fluoranthene	ND	10							
Fluorene	ND	10							
Hexachlorobenzene	ND	10							
+exachlorobutadiene	ND	10							
Hexachlorocyclopentadiene	ND	10							
Hexachloroethane	NÐ	10							
ndeno(1,2,3-cd)pyrene	ND	10							
Isophorone	ND	10							
1-Methylnaphthalene	ND	10							
2-Methylnaphthalene	ND	10							
2-Methylphenol	ND	20							
+4-Methylphenol	ND	10							
N-Nitrosodi-n-propylamine	ND	10							
N-Nitrosodimethylamine	ND	10							
N-Nitrosodiphenylamine	ND	10							
Vaphthalene	ND	10							
2-Nitroaniline	ND	10							
3-Nitroaniline	ND	10							
I-Nitroaniline	ND	10							
Vitrobenzene	ND	10							
2-Nitrophenol	ND	10							
4-Nitrophenol	ND	10							
Pentachlorophenol	ND	20							
^o henanthrene	ND	10							
Phenol	ND	10							
^o yrene	ND	10							
Pyridine	ND	10							
,2,4-Trichlorobenzene	ND	10							
,4,5-Trichlorophenol	ND	10							
,4,6-Trichlorophenol	ND	10							
Surr: 2-Fluorophenol	140	200.0		68.8	12.1	85.8			
Surr: Phenol-d5	130	200.0		64.5	17.7	65.8			
Surr: 2,4,6-Tribromophenol	130	200.0		66.6	26	138			
Surr: Nitrobenzene-d5	79	100.0		79.4	47.5	119			
Surr: 2-Fluorobiphenyl	75	100.0		75.3	48.1	106			
Surr: 4-Terphenyl-d14	74	100.0		74.3	44	113			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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1410102 23-Oct-14

Client: Western Refining Southwest, Inc.

Project: Injection Well 4th QTR 10-1-14

Sample ID Ics-15747	SampT	ype: LC	S	Tes	tCode: El	PA Method	8270C: Semi	volatiles		
Client ID: LCSW	Batch	n ID: 15	747	F	RunNo: 2	1803				
Prep Date: 10/7/2014	Analysis D	ate: 10)/9/2014	5	SegNo: 6	40785	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Quai
Acenaphthene	77	10	100.0	0	76.7	47.9	114			
4-Chloro-3-methylphenol	180	10	200.0	0	88.1	51.7	122			
2-Chlorophenol	170	10	200.0	0	83.0	40.7	113			
1,4-Dichlorobenzene	70	10	100.0	0	70.4	39.6	99.9			
2,4-Dinitrotoluene	69	10	100.0	0	68.9	40.8	113			
N-Nitrosodi-n-propylamine	81	10	100.0	0	81.2	51.2	111			
1-Nibaphenol	130	10	200.0	0	64.1	15.7	86.9			
Pentachlorophenoł	120	20	200.0	0	59.2	21.6	104			
Phenol	140	10	200.0	0	71.0	28.6	71.7			
Pyrene	73	10	100.0	0	73.1	54.2	128			
1,2,4-Trichlorobenzene	71	10	100.0	0	71.2	40.9	101			
Surr: 2-Fluorophenol	150		200.0		73.2	12.1	85.8			
Surr: Phenol-d5	140		200.0		71.8	17.7	65.8			S
Surr: 2,4,6-Tribromophenol	140		200.0		70.9	26	138			
Surr: Nitrobenzene-d5	83		100.0		83.4	47.5	11 9			
Surr: 2-Fluorobiphenyl	0.46		100.0		0.460	48.1	106			S
Sun: 4-Terphenyl-d14	75		100.0		75.1	44	113			
Sample ID Icsd-15747	SampT	ype: LC:	SD	Test	Code: EF	PA Method	8270C: Semiv	volatiles		
Client ID: LCSS02	Batch	ID: 157	47	R	unNo: 2 ′	1803				
Prep Date: 10/7/2014	Analysis D	ate: 10	/9/2014		egNo: 64	40786	Units: µg/L			

Prep Date: 10/7/2014	Analysis L	Date: 10	0/9/2014	5	seqino: 6	40786	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	79	10	100.0	0	78.8	47.9	114	2.60	27.2	_
4-Chlaro-3-methylphenol	190	10	200.0	0	94.7	51.7	122	7.26	25.9	
2-Chlorophenol	160	10	200.0	0	80.2	40.7	113	3.52	22.5	
1,4-Dichlorobenzene	74	10	100.0	0	73.7	39.6	99.9	4.50	24.6	
2,4-Dinitrotoluene	73	10	100.0	0	73.1	40.8	113	6.00	25.3	
N-Nitrosodi-n-propylamine	79	10	100.0	0	79.0	51.2	111	2.82	23.6	
4-Nitrophenol	140	10	200.0	0	69.4	15.7	86.9	7.95	34.7	
Pentachlorophenol	120	20	200.0	0	61.6	21.6	104	4.01	32.8	
Phenol	140	10	200.0	0	68.3	28.6	71.7	3.88	25.5	
Pyrene	79	10	100.0	0	78.8	54.2	128	7.56	31.4	
1,2,4-Trichlorobenzene	76	10	100.0	0	75.7	40.9	101	6.10	25.9	
Sun: 2-Fluorophenol	150		200.0		73.3	12.1	85.8	0	0	
Surr: Phenol-d5	140		200.0		72.3	17.7	65.8	0	0	S
Surr: 2,4,6-Tribromophenol	140		200.0		70.9	26	138	0	0	
Surn: Nitrobenzene-d5	88		100.0		88.0	47.5	119	0	0	
Surr: 2-Fluorobiphenyl	83		100.0		83.2	48.1	106	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.

E Value above quantitation range

- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

- P Sample pH greater than 2.
- RL Reporting Detection Limit

1410102

WO#:

23-Oct-14

Client:Western Refining Southwest, Inc.Project:Injection Well 4th QTR 10-1-14

Sample ID Icsd-15747	SampType: LCSD			Tes	TestCode: EPA Method 8270C: Semivolatiles							
Client ID: LCSS02	Batcl	n ID: 15	747 RunNo: 21803									
Prep Date: 10/7/2014	Analysis D	ate: 1	0/9/2014	S	SeqNo: 6	40786	Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		
Surr: 4-Terphenyl-d14	81		100.0		80.9	44	113	0	0			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSD]imit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
 - P Sample pH greater than 2,
 - RL Reporting Detection Limit

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WO#: 1410102

23-Oct-14

Client: Western Refining Southwest, Inc. Project: Injection Well 4th QTR 10-1-14

Sample ID MB-15770	SampType: MBLK	TestCode: EPA Method	7470: Mercury	/		
Client ID: PBW	Batch ID: 15770	RunNo: 21753				
Prep Date: 10/7/2014	Analysis Date: 10/8/2014	SeqNo: 639033	Units: mg/L			
Analyte	Result PQL SPK value	SPK Ref Val %REC · LowLimit	HighLimit	%RPD	RPDLimit	Qual
1						
viercury	ND 0.00020	·				
	ND 0.00020 SampType: LCS	TestCode: EPA Method	7470: Mercury	,		=
		TestCode: EPA Method RunNo: 21753	7470: Mercury			
Sample ID LCS-15770 Client ID: LCSW	SampType: LCS		7470: Mercury Units: mg/L	,		
	SampType: LCS Batch ID: 15770 Analysis Date: 10/8/2014	RunNo: 21753	-	%RPD	RPDLimit	Qual

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
 - P Sample pH greater than 2.
 - RL Reporting Detection Limit

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Client: Western Refining Southwest, Inc.

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Project: Injection Well 4th QTR 10-1-14

Sample ID MB-15825	SampType: MBLK TestCode: EPA 6010B: Total Recoverable Metals									
Client (D: PBW	Bate	ch ID: 15	825	F	RunNo: 2	1801				
Prep Date: 10/9/2014	Analysis	Date: 1	0/10/2014	S	SeqNo: 6	40639	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020		_						
Barium	ND	0.020								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
.ead	ND	0.0050								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	0.010	0.0050								
odium	ND	1.0								
Sample ID LCS-15825	Samp	Type: LC	= <u></u> S	Test	tCode: El	PA 6010B: '	Total Recover	able Meta	ils	
Sample ID LCS-15825 Client ID: LCSW		Type: LC			tCode: Ei RunNo: 2		Total Recover	able Meta	als	
Client ID: LCSW		ch ID: 15	825	R		1801	Total Recover Units: mg/L	able Meta	als	
Client ID: LCSW	Bate	ch ID: 15	825 D/10/2014	R	RunNo: 2	1801		able Meta %RPD	als RPDLimit	Qual
Client ID: LCSW Prep Date: 10/9/2014	Bato Analysis	ch ID: 15 Date: 10	825 D/10/2014	R	RunNo: 2 SeqNo: 6	1801 40640	Units: mg/L			Qual
Client ID: LCSW Prep Date: 10/9/2014 Analyte ssenic	Bato Analysis Result	ch ID: 15 Date: 10 PQL	825 0/10/2014 	R S SPK Ref Val	RunNo: 2 SeqNo: 6 %REC	1801 40640 LowLimit	Units: mg/L HighLimit			Qual
Client ID: LCSW Prep Date: 10/9/2014 Analyte	Bato Analysis Result 0.52	ch ID: 15 Date: 10 PQL 0.020	825 0/10/2014 SPK value 0.5000	R S SPK Ref Val 0	RunNo: 2 SeqNo: 6 %REC 104	1801 40640 LowLimit 80	Units: mg/L HighLimit 120			Qual
Client ID: LCSW Prep Date: 10/9/2014 Anatyte Isenic Iarium Radmium	Bato Analysis Result 0.52 0.49	ch ID: 15 Date: 10 PQL 0.020 0.020	825 0/10/2014 SPK value 0.5000 0.5000	R S SPK Ref Val 0 0	RunNo: 2 SeqNo: 6 %REC 104 98.9	1801 40640 LowLimit 80 80	Units: mg/L HighLimit 120 120			Qual
Client ID: LCSW Prep Date: 10/9/2014 Anatyte usenic larium cadmium calcium	Bato Analysis Result 0.52 0.49 0.49	ch ID: 15 Date: 10 PQL 0.020 0.020 0.0020	825 0/10/2014 SPK value 0.5000 0.5000 0.5000	R S SPK Ref Val 0 0 0	RunNo: 2 SeqNo: 6 %REC 104 98.9 98.9	1801 40640 LowLimit 80 80 80	Units: mg/L HighLimit 120 120 120			Qual
Client ID: LCSW Prep Date: 10/9/2014 Anatyte usenic Barium Barium Barium Barium Barium Barium Barium	Bato Analysis Result 0.52 0.49 0.49 52	ch ID: 15 Date: 10 PQL 0.020 0.020 0.0020 1.0	825 D/10/2014 SPK value 0.5000 0.5000 0.5000 50.00	R S SPK Ref Val 0 0 0 0	RunNo: 2 SeqNo: 6 %REC 104 98.9 98.9 104	1801 40640 LowLimit 80 80 80 80	Units: mg/L HighLimit 120 120 120 120			Qual
Client ID: LCSW Prep Date: 10/9/2014 Analyte usenic tarium cadmium cadmium calcium chromium ead	Bato Analysis Result 0.52 0.49 0.49 52 0.48	ch ID: 15 Date: 10 PQL 0.020 0.020 0.0020 1.0 0.0060	825 0/10/2014 SPK value 0.5000 0.5000 0.5000 50.00 0.5000	R S SPK Ref Val 0 0 0 0 0	RunNo: 2 SeqNo: 6 %REC 104 98.9 98.9 98.9 104 96.8	1801 40540 LowLimit 80 80 80 80 80 80	Units: mg/L HighLimit 120 120 120 120 120			Qual
Client ID: LCSW Prep Date: 10/9/2014 Anatyte usenic tarium Cadmium Cadmium Calcium Chromium ead Alagnesium	Bato Analysis 0.52 0.49 0.49 52 0.48 0.49	ch ID: 15 Date: 10 PQL 0.020 0.020 0.0020 1.0 0.0060 0.0050	825 D/10/2014 SPK value 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000	R S SPK Ref Val 0 0 0 0 0 0 0	RunNo: 2 SeqNo: 6 %REC 104 98.9 98.9 104 96.8 97.6	1801 40640 LowLimit 80 80 80 80 80 80 80	Units: mg/L HighLimit 120 120 120 120 120 120 120			Qual
Client ID: LCSW Prep Date: 10/9/2014 Analyte vsenic larium	Bato Analysis 0.52 0.49 0.49 52 0.48 0.49 51	ch ID: 15 Date: 10 PQL 0.020 0.020 0.0020 1.0 0.0060 0.0050 1.0	825 D/10/2014 SPK value 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 50.00	R S SPK Ref Val 0 0 0 0 0 0 0 0 0	RunNo: 2 SeqNo: 6 %REC 104 98.9 98.9 104 96.8 97.6 103	1801 40640 LowLimit 80 80 80 80 80 80 80 80	Units: mg/L HighLimit 120 120 120 120 120 120 120 120			Qual
Client ID: LCSW Prep Date: 10/9/2014 Anatyte usenic tarium cadmium calcium chromium ead Magnesium otassium	Bato Analysis 0.52 0.49 0.49 52 0.48 0.49 51 49	ch ID: 15 Date: 10 PQL 0.020 0.0020 0.0020 1.0 0.0060 0.0050 1.0 1.0	825 D/10/2014 SPK value 0.5000 0.5000 0.5000 0.5000 0.5000 50.00 50.00 50.00	R S SPK Ref Val 0 0 0 0 0 0 0 0 0 0 0	RunNo: 2 SeqNo: 6 %REC 104 98.9 98.9 98.9 104 96.8 97.6 103 98.8	1801 40640 LowLimit 80 80 80 80 80 80 80 80 80 80	Units: mg/L HighLimit 120 120 120 120 120 120 120 120 120			Qual

Qualifiers:

* Value exceeds Maximum Contaminant Level.

Е Value above quantitation range

- J Analyte detected below quantitation limits
- 0 RSD is greater than RSDlimit R
- RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded Η
- ND Not Detected at the Reporting Limit
 - Р Sample pH greater than 2.
 - RL, Reporting Detection Limit

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1410102 23-Oct-14

QC SUMMARY REPORT

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Client: Project:	Western Refining Southwest, Inc. Injection Well 4th QTR 10-1-14
Sample ID mb-1	SampType: MBLK TestCode: SM2320B: Alkalinity
Client ID: PBW	Batch ID: R21715 RunNo: 21715
Prep Date:	Analysis Date: 10/6/2014 SeqNo: 637458 Units: mg/L CaCO3
Analyte Total Alkalinity (as CaC	Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual 03) ND 20
Sample ID Ics-1	
Client ID: LCSW	SampType: LCS TestCode: SM2320B: Alkalinity / Batch ID: R21715 RunNo: 21715
Prep Date;	Analysis Date: 10/6/2014 SeqNo: 637459 Units: mg/L CaCO3
Analyte	Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Total Alkalinity (as CaC	O3) 83 20 80.00 0 103 90 110
Sample ID mb-2	SampType: MBLK TestCode: SM2320B: Alkalinity
Client ID: PBW	Batch ID: R21715 RunNo: 21715
Prep Date:	Analysis Date: 10/6/2014 SeqNo: 637474 Units: mg/L CaCO3
Analyte	Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Total Alkalinity (as CaC	03) ND 20
Sample ID Ics-2	SampType: LCS TestCode: SM2320B: Alkalinity
Client ID: LCSW	Batch ID: R21715 RunNo: 21715
Prep Date:	Analysis Date: 10/6/2014 SeqNo: 637475 Units: mg/L CaCO3
Analyte	Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Total Alkalinity (as CaC	03) 81 20 80.00 0 102 90 110

Hall Environmental Analysis Laboratory, Inc.

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
 - P Sample pH greater than 2.
 - RL Reporting Detection Limit

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Client: Western Refining Southwest, Inc.

Project:	Injection Well 4th QTR 10-1-14	
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Sample ID MB-15759	SampType: MBLK	TestCode: SM2540C M	OD: Total Diss	olved Solid	ds	
Client (D: PBW	Batch (D: 15759	RunNo: 21752				
Prep Date: 10/7/2014	Analysis Date: 10/8/2014	SeqNo: 638741	Units: mg/L			
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit	%RPD	RPDLimit	Qual
					_	
Total Dissolved Solids	ND 20.0	_,				
Sample ID LCS-15759	ND 20.0 SampType: LCS	TestCode: SM2540C MC	DD: Total Diss	olved Solid	ds	
		TestCode: SM2540C MC RunNo: 21752	DD: Total Diss	olved Solid	ds	<u> </u>
Sample ID LCS-15759	SampType: LCS		DD; Total Diss Units: mg/L	oived Solid	ds	
Client ID: LCSW	SampType: LCS Batch ID: 15759 Analysis Date: 10/8/2014	RunNo: 21752			ds RPDLimit	Qual

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- $R \qquad \text{RPD outside accepted recovery limits}$
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
 - P Sample pH greater than 2.
 - RL Reporting Detection Limit

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1410102 23-Oct-14

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

Sample Log-In Check List

-

Client Name:	Western Refining Southw	Work Order Number:	1410102	102 RcptNo: 1							
Received by/date	LANIO/02	//ч			<u></u>						
Logged By:	Anne Thorne	10/2/2014 6:50:00 AM		arme Arm	~						
Completed By:	Anne Thorne	10/2/2014		an Im	-						
Reviewed By:	NA-	10/02/14									
Chain of Cust	ody										
1. Custody seals	s intact on sample bottles?		Yes 🗌	No 🗔	Not Present 🗹						
2. Is Chain of Cu	ustody complete?		Yes 🗹	No 🗋	Not Present						
3. How was the	sample delivered?		<u>Courler</u>								
<u>Log In</u>											
4. Was an atten	npt made to cool the sample	s?	Yes 🗹	No 🗀	NA 🗔						
5. Were all samp	ples received at a temperatu	ire of >0° C to 6.0°C	Yes 🗹	No 🗌	na 🗔						
6. Sample(s) in	proper container(s)?		Yes 🗹	No 🗍							
7. Sufficient sam	nple volume for indicated tes	t(s)?	Yes 🗹	No 🗋							
8. Are samples (except VOA and ONG) prop	erly preserved?	Yes 🗹	No 🗖							
9. Was preserva	tive added to bottles?		Yes 🗌	No 🗹	na 🗆						
10.VOA vials hav	ve zero headspace?		Yes 🗹	No 🗔	No VOA Vials						
11. Were any sar	nple containers received bro	oken?	Yes 🗌	No 🗹	# of preserved	00					
	ork match bottle labels? ancies on chain of custody)		Yes 🔽	No 🗍	bottles checked for pH:	(12) unless noted)					
• •	correctly identified on Chain	of Custody?	Yes 🗹	No 🗆	Adjusted	<u>-ND</u>					
14. Is it clear what	t analyses were requested?		Yes 🗹	No 🗔		J.					
	ng times able to be met? ustomer for authorization.)		Yes 🗹	No 🗔	Checked by:	- A					
(······································					0					

Special Handling (if applicable)

16. Was client notified of all	discrepancies with this order?	Yes 🛄	No 🗋 🕚	NA 🔽
Person Notified:		Date		
By Whom:		Via: 🗌 eMail 🛄 Pl	hone 🔲 Fax 📋 In	Person
Regarding:				
Client Instructions:			- And	

.

17. Additional remarks:

18. Cooler Information

Cooler No	D Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.3	Good	Yes			

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(<u>Chain-</u>	of-Cu	stody Record	Turn-Around	Time:					٩.			c	NI 17	то		n i R.	A 6 I	NT/	A I	
Client:	Weste	na) 1	Refining	Standard	🗆 Rush			ــــا ۲۰۰۰											ТО		7
				Project Name		10-1	-14								nenta						
Mailing	Address:	# 5	0 CR-4990	TUJECTION Well TATE 4901 Hawkins NE - Albuguerque, NM 87109																	
RI	m	ald a	NM 87413	Project #:				Tel. 505-345-3975 Fax 505-345-4107													
Phone #: 505-632-4/35				-					1011	000 0					Requ						
email or Fax#:				Project Mana	ger:				Ξĝ	5	٩			SO4)				1.1	·		Τ
QA/QC Package:				-			(8021)		A) TDS	3	<u>ଚ</u>	식	, N	PCB's		.	Grosivity	1	3		
□ Standard XLevel 4 (Full Validation)							ഗി	Ő	210	R.	SIM	Z	<u> </u>	2 PC			, L		7		
			Sampler:		a see by foreigners a second second		TMB'	TPH (Gas only)		El Back 1 P	072	2	Ŝ	808			q		H	E	
		□ Othe	<u>۳</u>	Sector States and the second se	A CALL AND A			+	+ à			ы 8,	<u> </u>	စ္နီ	es/		S	Ŕ	2		Nor N
	D (Type)			Saublearen	italellure: 1.5			MTBE				310,	Meta	ธิ์	ticid	S	-iel	- a	S¦∛	Y -	
Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type			BTEX + N	BTEX + MTBE			PAH's (8310 or 8270 SIMS)	RCRA 8 Metals C. W. N. K	Anions (F,	8081 Pesticides / 8082	8260B (VOA)	8270 (Semi-VOA)	بجنا نطعانلو	Reactivity	注す	
****	10100	11 >	<u> </u>	7.440	1/0/			<u> </u>		<u>+ </u>	196	4	Ř	<u>₹</u>			8	<u> </u>	뿌		<u>V</u> ą
09-14	10:00	ΠΔΟ	Inj. well	3-10A			7				<u> </u>					X			+		+
	+		<u>├</u>		amber		4	_			-				<u>.</u>		시			_ _	+
		┠───┤──		1-500m		-76				_	<u> </u>						$ \rightarrow $	X		_	
	<u> </u>		· · · · · · · · · · · · · · · · · · ·	1-500ml			<u> </u>			<u> </u> X		<u> </u>							<u> </u>	<u> </u>	
·		<u> </u>		1-125 m		-a					<u> </u> X	_				\leq	÷	$ \rightarrow $	\perp		\perp
				1-500 ml	HN03	-00	7						X						\perp	_	
				1-500 ml	NaOH	-70	à												X		
l					ZN-ACETATE	770														X	
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Date:	Time:	Relinquish	ed by: fut Krakon	Received by:	That		21	Ren	narks:			- -		•				·•			
	Time:	Relinquish	ust Wheler	Received by:	A	Date Time	650							•							

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Appendix D Closure Plan

Western Refinery Southwest Inc. Bloomfield Terminal Waste Disposal Well (WDW) #2

Closure Plan

In accordance with Rule 19.15.25 NMAC the following information describes the possible closure plan which would entail plugging and abandoning the proposed well bore and reclaiming the surface location to pre-drill status. This is Western's standard closure procedure.

All closure activities will include proper documentation and be available for review upon request. All required paperwork (sundry notices) will be submitted to NMOCD for approval prior to any field work taking place. All plug and abandon activities are intended to protect fresh water, public health and the environment.

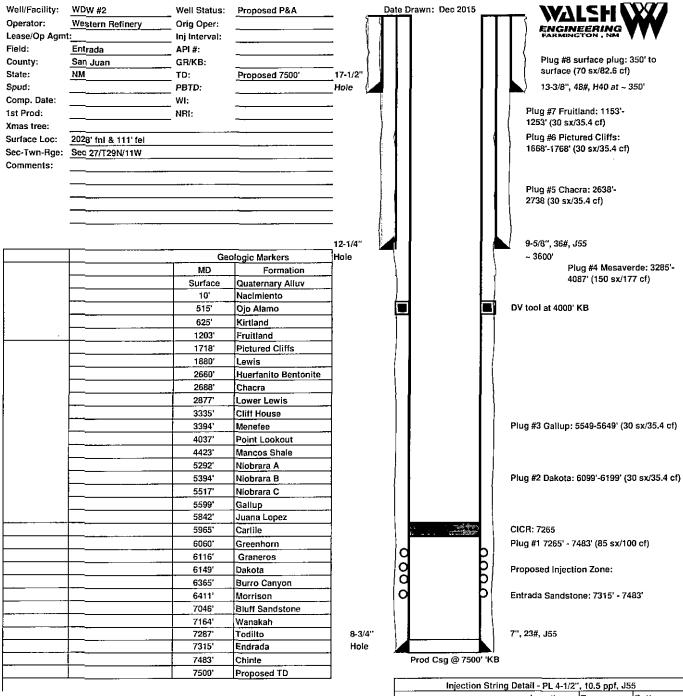
General Plan

- 1. Notify NMOCD
- 2. Note: verify all cement volumes based on actual slurry to be pumped.
- 3. Review any COA's from NMOCD

Procedure

- 1 Move-in, rig up pulling unit. Pump & pit. Half tank for cement returns.
- 2 Hold safety meeting with rig crew and related personnel explaining the procedure and outlining potential hazards.
- 3 ND WH & NU BOP
- 4 TIH w/ CICR & set at ~ 7265'.
- 5 Load hole and circulate clean with fresh water.
- 6 Load tubing and pressure test tubing to 1000 psi.
- 7 Pull stinger out of CICR enough to load hole w/ water and circulate clean. Test casing to 500 psi.
- 8 Plug #1 (7265'-7483'). Mix & pump 85 sx (100 cf) of Class B neat cement. Sting out of retainer leaving 50' of cement on top of retainer. Note. Cement volumes will be adjusted if alternate but comparable cement is used (based on vendor selection). Volumes estimated using 100% excess.
- 9 Pull up hole.
- 10 Spot plug #2 in a balanced plug. Plug #2 Dakota: (6099'–6199'). Mix & pump 30 sx (35.4 cf) of Class B neat cement. Calculated cement volumes to include extra 50' of cement.

- 11 Pull up hole & WOC. TIH & tag TOC.
- 12 Spot plug #3 in a balanced plug. Plug #3 Gallup (5549'-5649'). Mix & pump 30 sx (35.4 cf) of Class B neat cement. Calculated cement volumes to include extra 50' of cement.
- 13 Pull up hole & WOC. TIH & tag TOC.
- 14 Spot plug #4 in a balanced plug. Plug #4 Mesaverde (3285'-4087'). Mix & pump 150 sx (177 cf) of Class B neat cement. Calculated cement volumes to include extra 50' of cement.
- 15 Pull up hole & WOC. TIH & tag TOC.
- 16 Spot plug #5 in a balanced plug. Plug #5 Chacra (2638'-2738'). Mix & pump 30 sx (35.4 cf) of Class B neat cement. Calculated cement volumes to include extra 50' of cement.
- 17 Pull up hole & WOC. TIH & tag TOC.
- 18 Spot plug #6 in a balanced plug. Plug #6 Pictured Cliffs (1668'-1768'). Mix & pump 30 sx (35.4 cf) of Class B neat cement. Calculated cement volumes to include extra 50' of cement.
- 19 Pull up hole & WOC. TIH & tag TOC.
- 20 Spot plug #7 in a balanced plug. Plug #7 Fruitland (1153'-11253'). Mix & pump 30 sx (35.4 cf) of Class B neat cement. Calculated cement volumes to include extra 50' of cement.
- 21 Pull up hole & WOC. TIH & tag TOC.
- 22 Spot plug #8 in a balanced plug. Plug #8 Surface Plug (350'-surface). Mix & pump 66 sx (77.9 cf) of Class B neat cement.
- 23 Fill up inside of casing w/ additional cement as needed to top off.
- 24 ND BOP & cut off well head.
- 25 Install P&A marker and cut off anchors.
- 26 RD & release rig and related equipment.
- 27 Remove all surface/production equipment.
- 28 Re-contour and re-claim surface/location as per NMOCD approved Reclamation plan.



Injection String	Injection String Detail - PL 4-1/2					
	Length	Тор	Bottom			
KB Adjustment	15.00	0	15.00			
4-1/2" PL casing/tubing		15.00	15.00			

WALSH ENGINEERING & PRODUCTION CORP.

Workover Cost Estimate

Western Refinery Southwest, Inc. AUTHORITY FOR EXPENDITURE

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			Date: 2/2	y
Vell Name : WDW #2 .ocation : Sec 27, T29N, R11W, San Juan, NM	Objective :	Permanently	P&A Wellbore	
·	Tangible	Intangible	Total	
Workover Costs	•			
inchors, and Misc.				
completion Rig (18 hrs @ \$250/hr, includes Mob-de-Mob, crew travel) completion Fluids/Water hauling (pump truck)		29,500	29,500	
Cased Hole Services (Including CICR)		7,200	7,200	
Cement		24,650	24,650	
ubing Head and Well Connection Fittings		-		
ubing (480 ft @ 3.30 \$/ft.)				
ucker Rods (50 rods @ 60 \$/rod)				
own hole pump				
umping equipment (Polish rod, tbg anchor, ect)				
tentals (tanks, etc)		1,720	1,720	
rucking		5,100	5,100	
urface Facility Installation				
estore Location				
/ell Site Supervision		4,100	4,100	
ngineering		1,000	1,000	
its				
abor & Trucking to remove surface equipment				
ipelines and Installation ank and Fittings				
isposal Costs		1,250	1,250	
leter		1,200	1,200	
urface Reclamation		5,125	5,125	
&A marker		135	135	
a cinantor		100	100	
Workover Costs	0	79,780	79,780	
10% Contingency	0	7,978	7,978	
Total Workover Costs	0	87,758	87,758	

Prepared By: John C. Thompson Date: 2/2/2016

Working Interest Owners

ESTIMATED COSTS ONLY--Each participating Owner to pay Proportionate Share of Actual Well Costs Subject to Operating Agreement

0341 First	C-108 A	plication	021-1
- / / Jana Jana Angla			03/07//6 [Ver 16]
ORDER TYPE: WFX / PMX SWD Number: 1629 Order (Legacy Permits/	Proders: In Conjunction
Well No. 2 Well Name(s): Waste Disposal Well	<u></u>	Class I (Non	"nazordou») Disposal
API : 30-0 45-35747 Spud Date: N	ew or Old: $\frac{\lambda}{2}$	lew] (UIC Class II F	Primacy 03/07/1982)
Footages 2028 FNL/ III' FEL Lot or Unit H Sec 27	тэр 291		_County San Juan_
Footages 2028' FNL/ III' FEL Lot _ or Unit H sec 27 ① First Application footages 2019' FNL/ 110' FEL - chang General Location: At decomissioned Bloom field Refinery. Pool: SU Bloom field IM Formation is determined	ges did no UD; Entro	t impact notice	Pool No.: 96436
BLM 100K Map: Namio Reservoir Operator: Western Refining Southwest	TACOGRID:	f - Entrada] 2(5) 595 Contact	Hen Haines, Refining
FA bonding will be based on COMPLIANCE RULE 5.9: Total Wells: Inactive: Fincl Assur:		•	
WELL FILE REVIEWED () Current Status: APD ponding; Closs I (non-	haz) pern	nit pending	·
WELL DIAGRAMS: NEW: Proposed or RE-ENTER: Before Conv. O After Co		U	
Planned Rehab Work to Well: NA- New well	_	· ·	
Church (in) Church (in)	. • "meria t	Cement	Cement Top and
Well Construction Details Borehole / Pipe		Sx r Ct	Determination Method
Planned or Existing Surface 17 1/2/133/8 0 to 350	Stage Tool	394	Cir. to Surf
Planned or Existing IntermiProd 121/4 95/8	TV tool	857	nit to suit (Ta)
Planned_or Existing_Interm Prod 83/4 7 () to 7500	CBL)	808	Cir. to sunt (OV 600
Planned_or Existing _ Prod/Liner	The Trinch		
Planned_or Existing	Inj Length		
Planned V or Existing OH (PERF) 844/ 7 7315 to 7483	168	Completion/	Operation Details:
Injection Lithostratigraphic Units: Depths (ft) Injection or Confining	Tops	Drilled TD	PBTD
		NEW TD 7500	
Adjacent Unit: Litho. Struc. Por. Mort ison	6411		
Confining Unit: (Atho. Struc) Por. +0 Todilto L3	7287	·	or NEW Perfs
Proposed Inj Interval TOP: 1315	7315	-	in. Inter Coated? Yes
Proposed Inj Interval BOTTOM: 37483		Proposed Packer De	5 m
Confining Unit Cithe Struc. Por. 10 Chinle	7483	Min. Packer Depth _	
Adjacent Unit: Litho. Struc. Por. Son Andres			ace Press <u>2000</u> psi
AOR: Hydrologic and Geologic Information		Admin. Inj. Press.	
POTASH: R-111-PNANoticed?_NABLM Sec Ord A WIPP A Woticed?	4_ Salt/Sala	ido т: <u>_//ł</u> B: <u>//</u> {	<u>NW</u> : Cliff House fun 3335
FRESH WATER: Aquifer Altwich (Ston R) Ojo Alemo Jornation Max Depth < 1000	HYDRO	AFFIRM STATEMEN	T By Qualified Person ()
NMOSE Basin: Son Joom CAPITAN REEF: thru adj NA	GW Welle	in 1-Mile Radius?	FW Analysis? MA
we are supported as a support of the second	There is a second and the	have a set a set of the set of th	I see the astronometer and an along on the state of the second
Disposal Fluid: Formation Source(s) Onsite - treatment and Analysis?	AN LOW	On Lease () Operato	or Only Ø or Commercial 🔿
Disposal Interval: Inject Rate (Avg/Max BWPD):350 800 Protectable W	aters?prob.	Source: No miles	Systemy Closed or Open
HC Potential: Producing Interval? 16 Formerly Producing? 10 Method: L	ogs/DST/P&	A/Other Historical	2-Mile Radius Pool Map
AOR Wells: 1/2-M Radius Map? Yes. Well List? Yes. Total No. Wells Pe	enetrating Int	erval: <u></u> mie_⊢	lorizontals? ϕ 2.mult
Penetrating Wells: No. Active Wells $\cancel{42}$ Num Repairs? on which well(s)?	SwD/	craft SWD#1	Diagrams :
Penetrating Wells: No. P&A Wells Wum Repairs?on which well(s)?		30-045-30	188 Diagrams? NA
NOTICE: Newspaper Date 12/14/15 Mineral Owner Applicant	•	wner Applicant	N. Date 12 14 15
RULE 26.7(A): Identified Tracts? Yes_Affected Persons: Burlington	and XTC); Holcomb Gil El	Gas N. Date 12/17/15
Order Conditions: Issues: Unknown water quelity of injection	internal;	site specific	HC potntial
Add Order Cond: - Added to COA for APD - TOS sample of	~ /	, , , ,	· · · · ·
any well workover - stimulation /	11		

P&A Well List (One-mile Radius +) - Western Refining SW, Inc. C-108 Application and Class I (non-haz) Application

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API WELL #	Well Name	Well #	Operator Name	Type	Stat	Sur Owner	UĹ	Sec	Twp	ĨN∕S	Ring	W/E	Footage	ͺ́N/S_	Footage	, E/W	TVD (řt)	Comment
30-045-08125-00-00	PRE-ONGARD WELL	001	PRE-ONGARD WELL OPERATOR	G	Ρ	Р	в	21	29	N	11	W	850	Ν	1750	E	1693	
30-045-07972-00-00	PRE-ONGARD WELL	001	PRE-ONGARD WELL OPERATOR	G	Ρ	Р	м	21	29	Ν	11	W	990	S	560	w	1703	
30-045-08024-00-00	PRE-ONGARD WELL	001	PRE-ONGARD WELL OPERATOR	G	Ρ	Р	F	21	29	N	11	W	2515	Ν	1410	w	704	
30-045-08025-00-00	PRE-ONGARD WELL	002	PRE-ONGARD WELL OPERATOR	0	Р	P	F	21	29	N	11	W	2440	Ν	1520	W	660	
30-045-08027-00-00	PRE-ONGARD WELL	009	PRE-ONGARD WELL OPERATOR	0	Ρ	P	G	21	29	N	11	W	2430	N	1920	E	700	
30-045-08051-00-00	PRE-ONGARD WELL	001	PRE-ONGARD WELL OPERATOR	G	Ρ	P	F	21	29	z	11	W	1650	N	1830	W	1915	
30-045-30587-00-00	SATEGNA	001R	BURLINGTON RESOURCES OIL & GAS COMPANY LP	Ð	Ρ_	P	м	21	29	z	11	×	1040	S	770	w	1744	
30-045-08036-00-00	PRE-ONGARD WELL	001	PRE-ONGARD WELL OPERATOR	G	Ρ	ρ	Е	21	29	N	11	Å	1650	N	330	E	630	
30-045-08137-00-00	PRE-ONGARD WELL	001	PRE-ONGARD WELL OPERATOR	G	P	P	A	21	29	N	11	Ŵ	569	N	301	E	795	
30-045-08162-00-00	PRE-ONGARD WELL	001	PRE-ONGARD WELL OPERATOR	w	P	P	в	21	29	N	11	W	100	N	2100	W	300	
30-045-08136-00-00	PRE-ONGARD WELL	001	PRE-ONGARD WELL OPERATOR	G	Ρ	P	A	22	29	N	11	W	660	N	785	E	767	
30-045-08166-00-00	PRE-ONGARD WELL	001	PRE-ONGARD WELL OPERATOR	G	Р	P	С	22	29	N	11	W	175	N	1570	W	700	
30-045-08169-00-00	PRE-ONGARD WELL	003	PRE-ONGARD WELL OPERATOR	G	Р	<u>ع</u>	D	22	29	N	11	W	200	N	200	W	540	
30-045-08109-00-00	PRE-ONGARD WELL	001	PRE-ONGARD WELL OPERATOR	G	P	P	D	22	29	N	11	W	905	N	1155	W	700	
30-945-32453-00-00	PRE-ONGARD WELL	007	PRE-ONGARD WELL OPERATOR	G	Ρ	Р	G	22	29	N	11	W	2400	N	2310	E	1036	
30-045-08086-00-00	PRE-ONGARD WELL	001	PRE-ONGARD WELL OPERATOR	G	٩	Р	Đ	22	29	N	11	W	1278	N	1027	W	1350	
30-045-07959-00-00	GRACE PEARCE	001	JOHN C PICKETT	G	P	Р	0	22	29	N	11	W	990	S	1650	E	1620	
30-045-07961-00-00	HARTMAN	001	MANANA GAS INC	G	p	P	Ρ	22	29	N	11	W	990	S	990	E	6310	Dakota target
30-045-08138-00-00	PRE-ONGARD WELL	001	PRE-ONGARD WELL OPERATOR	G	Р	P	В	22	29	N	11	W	500	N	1800	E	620	
30-045-08045-00-00	HARE	001	KENDALL & ASSOCIATES	0	Ρ	Р	G	23	29	N	11	W	1980	N	1650	Ē	730	
30-045-08120-00-00	PRE-ONGARD WELL	001	PRE-ONGARD WELL OPERATOR	G	Ρ	P	Ð	23	29	N	11	W	990	N	990	W	1130	
30-045-08010-00-00	PRE-ONGARD WELL	001	PRE-ONGARD WELL OPERATOR	G	P	P	1	23	29	N	11	W	2275	S	685	E	1478	
30-045-08116-00-00	PRE-ONGARD WELL	001	PRE-ONGARD WELL OPERATOR	G	Ρ	P	С	23	29	N	- 11	W	990	N	1650	w	1490	
30-045-08165-00-00	PRE-ONGARD WELL	002	PRE-ONGARD WELL OPERATOR	G	Р	Р	в	23	29	N	11	W	150	N	1980		800	
30-045-08110-00-00	PRE-ONGARD WELL	004	PRE-ONGARD WELL OPERATOR	0	P	P	в	23	29	Ň	11	w	990	N	1650	E	802	
30-045-08064-00-00	PRE-ONGARD WELL	005	PRE-ONGARD WELL OPERATOR	G	р	P	Е	23	29	N	. 11	W	1620	N	300	W	650	
30-045-25887-00-00	EARL B SULLIVAN GAS COM B	001	BP AMERICA PRODUCTION COMPANY	Ĝ	Р	P	1	23	29	N	11	W	1650	S	1190	E	2858	
30-045-08061-00-00	HARE	001	BURLINGTON RESOURCES OIL & GAS COMPANY LP	G	Р	Р	G	23	29	N	11	W	1650	Ν	1650	Ē	1766	
30-045-07985-00-00	PEARCE GAS COM	001	BP AMERICA PRODUCTION COMPANY	G	Р	S	к	23	29	N	11	Ŵ	1470	S	1775	w	6274	Dakota target
30-045-08009-00-00	PRE-ONGARD WELL	001	PRE-ONGARD WELL OPERATOR	G	Ρ	S	к	23	29	N	11	W	2210	S	1660	w	1507	
30-045-08056-00-00	HARE	003	KENDALL & ASSOCIATES	0	Р	Р	G	23	29	N	11	W	1686	N	2239	E	735	
30-045-08034-00-00	HARE	002	KENDALL & ASSOCIATES	0	P	Р	G	23	29	N	11	w	2310	N	1650	E	738	
30-045-08032-00-00	SEITZINGER	001	ALLEN ORION	0	Р	Р	н	23	29	N	11	W	2310	N	990	E	750	
30-045-24517-00-00	HARE	004	KENDALL & ASSOCIATES	0	Р	Р	G	23	29	N	11	w	2020	N	2140	E	1000	
30-045-08047-00-00	HARE GAS COM B	001	XTO ENERGY, INC	G	Р	P	G	23	29	N	11	W	1825	N	2330	E	6382	Dakota target
30-045-07776-00-00	PRE-ONGARD WELL	001	PRE-ONGARD WELL OPERATOR	G	Р	S	M	26	29	N	11	W	330	S	330	W	1758	
30-045-07870-00-00	PRE-ONGARD WELL	00X	PRE-ONGARD WELL OPERATOR	G	Р	Р	G	26	29	N	11	W	1782	N	1570	E	1442	
30-045-29107-00-00	PRE-ONGARD WELL	001X	PRE-ONGARD WELL OPERATOR	G	P	Р	G	26	29	N	11	W	1806	N	1570	E	850	Junk in hole; P&A
30-045-22639-00-00	DELO	011	GENERAL MINERALS CORP	G	Р	F	P	26	29	N	11	w	790	S	790	E	1945	
30-045-07883-00-00	PRE-ONGARD WELL	002	PRE-ONGARD WELL OPERATOR	G	P	Ρ	н	27	29	N	11	w	1450	N	1120	E	1701	
30-045-07903-00-00	PRE-ONGARD WELL	001	PRE-ONGARD WELL OPERATOR	G	P	F	M	27	29	N	11	W	990	S	990	w	1747	<u> </u>
30-045-07825-00-00	DAVIS GAS COM F	001	BP AMERICA PRODUCTION COMPANY	G	P	P	1	27	29	N	11	W	1850	s	1190	E	6365	Dakota target
30-045-07812-00-00	PRE-ONGARD WELL	001	PRE-ONGARD WELL OPERATOR	G	Р	P		27	29	N	11	W	1650	S	990	E	1804	
30-045-23553-00-00	PRE-ONGARD WELL	001	PRE-ONGARD WELL OPERATOR	G	P	P	н	27	29	N	11	W	1545	N	1140	E	NA	Never spud
30-045-07896-00-00	PRE-ONGARD WELL	001	PRE-ONGARD WELL OPERATOR	G	P	P	C	27	29	N	11	w	920	N	1520	w	800	
30-045-21732-00-00	GARLAND B	001R	BURLINGTON RESOURCES OIL & GAS COMPANY LP	G	P	F	M	27	29	N	11	W	790	S	860	w	1810	
30-045-23554-00-00	DAVIS GAS COM G	001	XTO ENERGY, INC	G	P	P	1	27	29	N	11	w	1605	s	1135	Ε	2951	
30-045-07849-00-00	PRE-ONGARD WELL	001	PRE-ONGARD WELL OPERATOR	G	- P	p~	E	28	29	N	11	W	2310	N	990	w	1645	<u> </u>
30-045-07895-00-00	PRE-ONGARD WELL	002	PRE-ONGARD WELL OPERATOR	G	P	P	A	28	29	Ň	11	W	1000	N	885	E	1623	·
30-045-07762-00-00	PRE-ONGARD WELL	003	PRE-ONGARD WELL OPERATOR	G	P	S	A	28	29	N	11	w	1080	N	940	Ē	670	
30-045-34466-00-00	MASDEN GAS COM	001F	XTO ENERGY, INC	G	P	P	F	28	29	N	11	W	1975	N	2275	- <u>-</u> -	710	
30-045-07862-00-00	PRE-ONGARD WELL	003	PRE-ONGARD WELL OPERATOR	G	P	s	G	28	29	N	11	w	1650	N	1650	E	1610	—— · · · · ·
				1	1	1		·	1 3		1 T.							

P&A Well List (One-mile Radius +) - Western Refining	SW, Inc. C-108 Application and Class I (non-haz) Application

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API WELL #	Well Name	Well #	Operator, Name	Туре	Stat	Sur Owner		Sec	Twp	N/S	Rng	W/E	Footage	N/S	Footage	Έ/Ψ	TVD (ft)	Comment
30-045-25268-00-00	SUMMIT	010	ENERGEN RESOURCES CORPORATION	G	Р	F	G	33	29	N	11	W	1650	N	1690	E	1564	
30-045-28407-00-00	PRE-ONGARD WELL	500	PRE-ONGARD WELL OPERATOR	G	Р	F	н	33	29	N	11	W	1825	N	1100	E	NA	Aband location
30-045-07725-00-00	SUMMIT	004	BURLINGTON RESOURCES OIL & GAS COMPANY LP	G	Р	F	А	33	29	N	11	W	990	N	990	E	1752	
30-045-07621-00-00	WITT	001	DUGAN PRODUCTION CORP	G	P	P	N	33	29	N	11	W	860	S	1840	W	1595	
30-045-07648-00-00	PRE-ONGARD WELL	002	PRE-ONGARD WELL OPERATOR	Ģ	Р	F	3	34	29	Ν	11	w	1520	S	1520	E	1792	
30-045-07674-00-00	PRE-ONGARD WELL	001	PRE-ONGARD WELL OPERATOR	G	Ρ_	F	J	34	29	N	11	W	2640	S	2300	Ē	1910	
30-045-07675-00-00	PRE-ONGARD WELL	002	PRE-ONGARD WELL OPERATOR	G	Ρ	F	μ	¥	29	N	11	¥	2440	N	1520	w	1800	
30-045-07633-00-00	PRE-ONGARD WELL	001	PRE-ONGARD WELL OPERATOR	G	Р	F	Ň	34	29	N	11	W	1070	S	2390	w	2002	
30-045-20752-00-00	LEA ANN	001	CHAPARRAL OIL & GAS CO	G	Р	F	Е	35	29	N	11	W	1850	N	790	W	1900	
30-045-25658-00-00	CONGRESS	014	BURLINGTON RESOURCES OIL & GAS COMPANY LP	0	P	F	A	35	29	N.	11	_w_	445	N	953	E	6013	Gallup target



New Mexico Office of the State Engineer Active & Inactive Points of Diversion

(with Ownership Information)

			_	(R=POD has been replaced and no longer serves this file,	(quarters are 1=NW 2=NE 3=SW	(4=SF)
	(acre ft p	er annum)		C=the file is closed)	(quarters are smallest to largest)	,
a strange and the second s	Sub basin Use Diver		County POD Number	Code Grant	Source_6416_4_Sec_Tws_Rng	X
SJ 00394	DOM	0 PABLO D. QUINTANA	SJ SJ 00394 - Expired		1 1 27 29N 11W	233260 4066010* 🦚
SJ 00700	DOM	3 EDD H. BROWN	sj <u>sj 00700</u> 70-30'		Shallow 3 3 1 27 29N 11W	233147 4065507* 🌍
SJ 01804	DOM	3 KENNETH W. LARSEN	sj <u>sj01804</u> - NG info		3 3 3 27 29N 11W	233119 4064713* 🌍
SJ 01808	POL	0 PLATEAU INC	SJ <u>SJ 01808 0-1</u>		Shallow 2 4 2 27 29N 11W	234561 4065683* 🌑
			SJ <u>SJ 01808 0-2</u>		Shallow 3 4 2 27 29N 11W	234361 4065483* 🎲
			SJ SJ 01808 0-3	boring wells / recovery	Shallow 4 4 2 27 29N 11W	234561 4065483* 🎲
			SJ <u>SJ 01808 0-4</u>	Walls (Shallow 3 3 2 27 29N 11W	233956 4065491* 🌍
			SJ <u>SJ 01808 0-5</u>	25'orless	Shallow 1 1 3 26 29N 11W	234753 4065274* 🍑
			SJ <u>SJ 01808 0-6</u>		Shallow 1 2 4 27 29N 11W	234347 4065283* 😱
SJ 01845	DOM	3 JOHN SCHLISSIGEN	SJ <u>SJ 01845</u> - No info		1 1 27 29N 11W	233260 4066010* 💭
<u>SJ 02121</u>	DOM	3 HUSKIE CHATTO	SJ <u>SJ 02121</u> - TD - 30	I	Shallow 1 1 27 29N 11W	233260 4066010* 😱
SJ 02148	DOM	3 CARROLL W. WOOTEN	sj <u>sj 02148</u> <u>in</u> a	pplication	Shallow 2 4 27 29N 11W	234448 4065184* 🏵
SJ 02210	DOM	3 DONALD C. LOONEY	SJ SJ 02210 - TD-3Z	1	Shallow 1 1 27 29N 11W	233260 4066010* 🎡
SJ 02227	DOM	3 YOGI B. CHAVEZ	SJ SJ 02227 - TD - 27	1	Shallow 4 1 1 27 29N 11W	233359 4065909* 💮
SJ 02231	DOM	3 DANIEL YELINEK	sj <u>sj 02231</u>		4 1 1 27 29N 11W	233359 4065909* 👰
SJ 02664	POL	0 BLOOMFIELD REFINING COMPANY	SJ <u>SJ 02664</u>		Shallow 2 3 27 29N 11W	233639 4065202* 💱
			SJ SJ 02664 S Monitor	ring & recovery wells	Shallow 2 3 27 29N 11W	233639 4065202* 🌍
			sj <u>sj 02664 s-10</u>	at facility	Shallow 2 3 27 29N 11W	233639 4065202*

*UTM location was derived from PLSS - see Help

	e ft per annum)	1911-1911-1911-1911-1911-1911-1911-191	(R≈POD has been replaced and no longer serves this file, C=the file is closed)	(quarters are sm	allest to largest)		in meters)
Sub WR File Nor basin Use I	Diversion Owner	County POD Number	Code Grant	qqq Source_6416 4		X	v .
	viversion - Owner	SJ SJ 02664 S-2			27 29N 11W	233639	4065202*
		SJ SJ 02664 S-3		Shallow 2 3	27 29N 11W	233639	4065202* 🎧
		SJ <u>SJ 02664 S-4</u>		Shallow 2.3	27 29N 11W	233639	4065202* 🏈
		SJ SJ 02664 S-5	-D(S): -43'	Shallow 2 3	27 29N 11W	233639	4065202* 🌍
		SJ <u>SJ 02664 S-6</u>	V	Shallow 2 3	27 29N 11W	233639	4065202* 🌍
		SJ SJ 02664 S-7		Shallow 2 3	27 29N 11W	233639	4065202* 🚱
		SJ <u>SJ 02664 S-8</u>		Shallow 2 3	27 29N 11W	233639	4065202* 🎧
		SJ <u>SJ 02664 S-9</u>		Shailow 2 3	27 29N 11W	233639	4065202* 🌍
<u>SJ 03588</u> STK	3 ROBERTA HENDERSON	SJ <u>SJ 03588</u> - 16 ¹	Ъ	Shallow 2 1 1	27 29N 11W	233359	4066109* 🌍
<u>SJ 03590</u> DOM	0 GARY WOODALL	SJ <u>SJ 03590</u> - EX	pired	211	27 29N 11W	233359	4066109* 🎡
Record Count: 28 POD Search: POD Basin: San Juan PLSS Search: Section(s): 26, 27 Sorted by: File Number	Township: 29N Range	: 11W		400 AD 400 AD 400 AD 400 AD			

*UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

McMillan, Michael, EMNRD

From:	John Thompson <john@walsheng.net></john@walsheng.net>
Sent:	Monday, January 04, 2016 10:23 AM
То:	McMillan, Michael, EMNRD
Subject:	RE: Western Refining Southwest Refining Co. SWD Well No.2 San Juan Co.

Western owns the surface.

From: McMillan, Michael, EMNRD [mailto:Michael.McMillan@state.nm.us]
Sent: Monday, January 04, 2016 9:31 AM
To: john@walsheng.net
Subject: Western Refining Southwest Refining Co. SWD Well No.2 San Juan Co.

John:

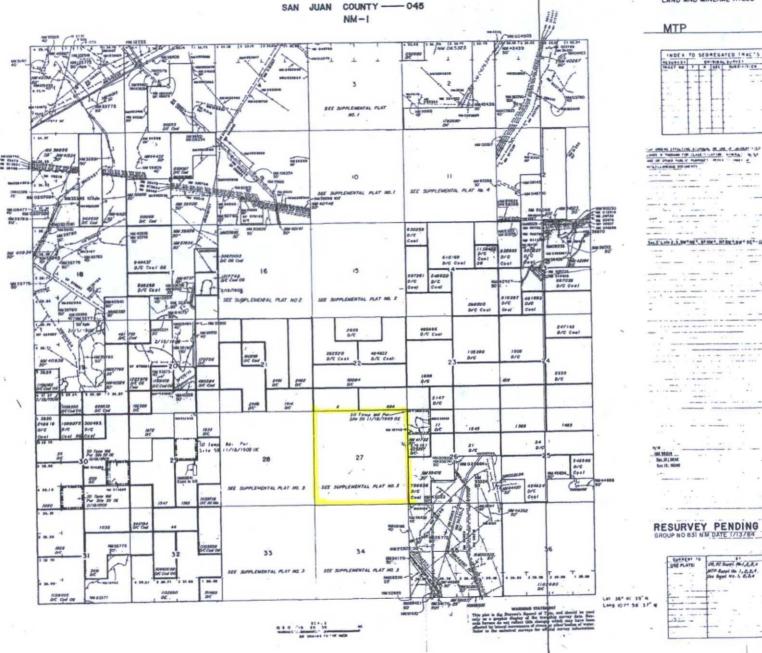
I could not figure out who owns the surface-have they been notified for the Western Refining Southwest Refining Co. SWD Well No.2?

Thank You

Michael A. McMillan

Engineering and Geological Services Bureau, Oil Conservation Division 1220 South St. Francis Dr., Santa Fe NM 87505 O: 505.476.3448 F. 505.476.3462 <u>Michael.mcmillan@state.nm.us</u> TOWNSHIP 29 NORTH, RANGE II WEST, OF THE NEW MEXICO PRIN. MERIDIAN, NEW MEXICO,



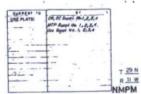


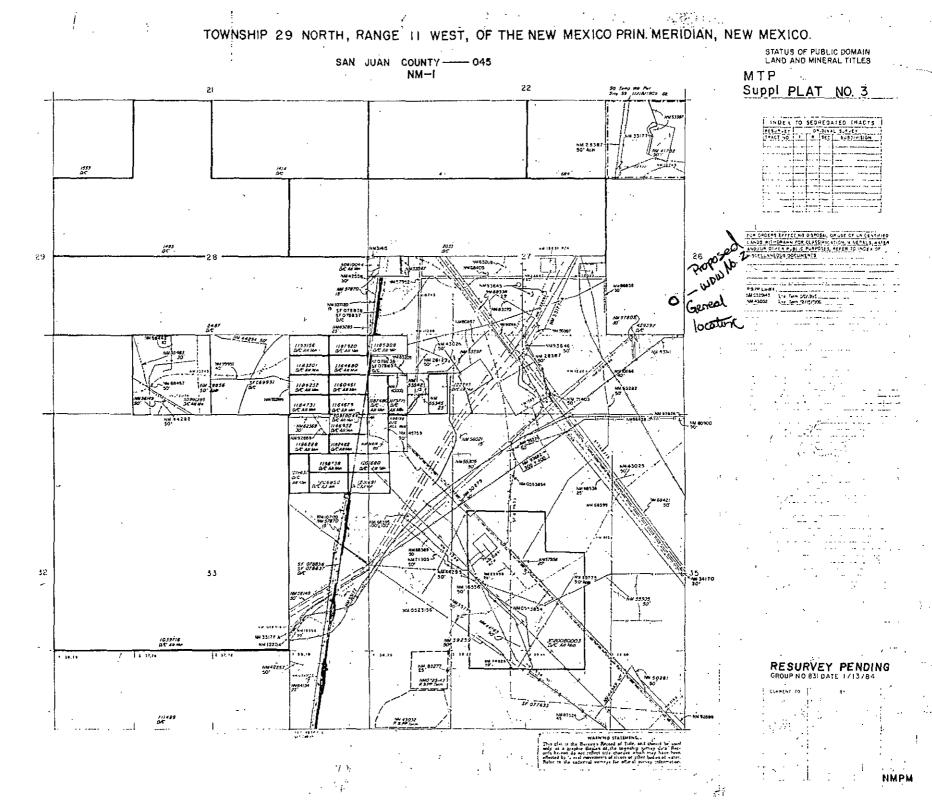






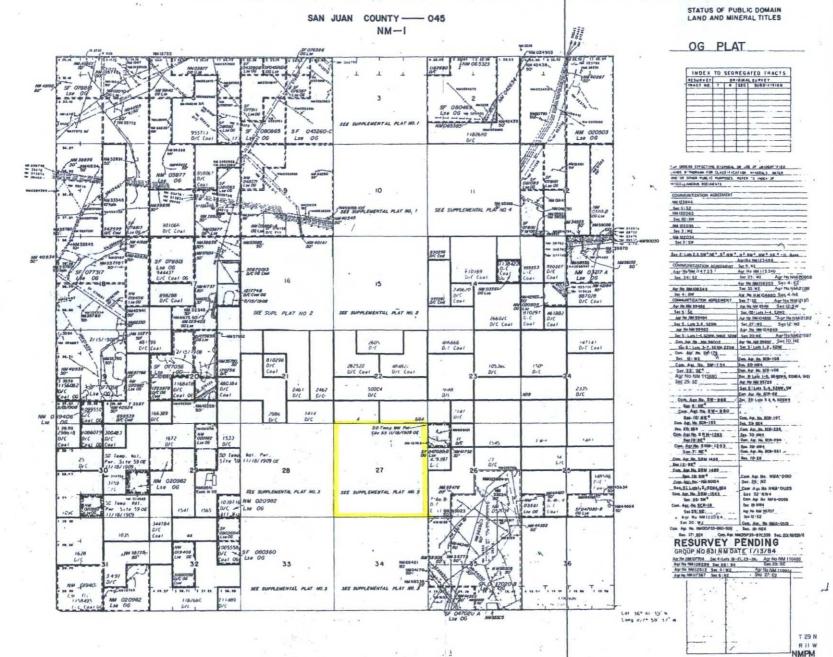




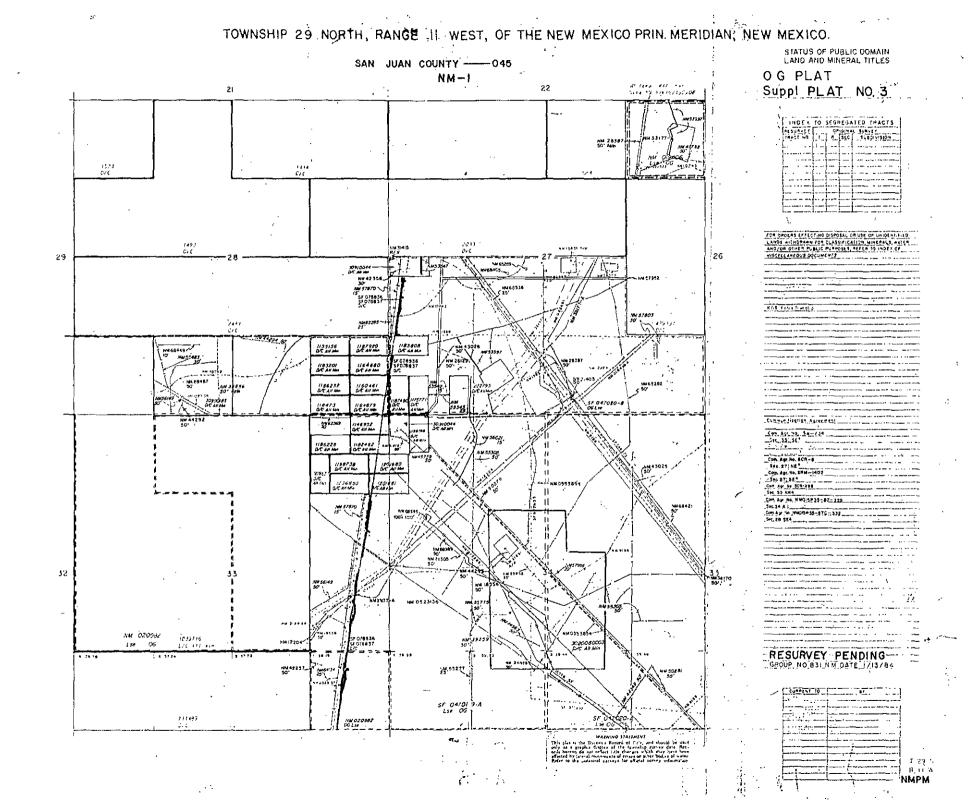


TOWNSHIP 29 NORTH, RANGE 11 WEST, OF THE NEW MEXICO PRIN. MERIDIAN, NEW MEXICO.

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Goetze, Phillip, EMNRD

From:Goetze, Phillip, EMNRDSent:Friday, May 20, 2016 4:23 PMTo:'Allen Hains'Cc:Griswold, Jim, EMNRD; Chavez, Carl J, EMNRD; John Thompson (john@walsheng.net)Subject:Notification of Affected Persons; C-108 Application for WDW No. 2

Mr. Hains:

Per our conversation today, I was conducting a assessment of the amended C-108 application for the Waste Disposal Well No. 2 for Western Refining Southwest's facility near Bloomfield. For this application, I found no attached copies of notification for affected persons as required under NMAC. However, at your suggestion, I revisited the original C-108 application prepared by Walsh Engineering and submitted in the original effort in December 2015 (Application No. pMAM1600432778; logged in 01/04/216). For the record, the notification provided in this first submittal is sufficient to satisfy the notification requirements. Though the surface location between the two applications (as described in the published notice and letters to effected persons) has slightly changed (from 2019' FNL/110' to FEL 2028' FNL/111' FEL), this is not significant and does not impact either the parties to be noticed or AOR wells. Additionally, the published notice is accurate to those major items that are deemed critical to proper notification such as injection interval, rate of injection, applicant, and contact information. Thank you for your patience in this matter. PRG

Phillip R. Goetze, PG
Engineering Bureau
Oil Conservation Division
New Mexico Energy, Minerals and Natural Resources Department 1220 South St. Francis Drive Santa Fe, NM 87505
Direct: 505.476.3466
E-mail: phillip.goetze@state.nm.us



Goetze, Phillip, EMNRD

From:	Powell, Brandon, EMNRD
Sent:	Wednesday, May 18, 2016 3:04 PM
То:	Perrin, Charlie, EMNRD; Griswold, Jim, EMNRD; Chavez, Carl J, EMNRD; Goetze, Phillip, EMNRD
Subject:	FW: Proof of Public Notice for Western Refining SW, Inc. WDW-2 Class 1 Injection Well Discharge Permit Application (UICI-011)
Attachments:	Western approval cover sheet.docx

Gentlemen-

We are in the process of finalizing the APD approval for this well and hope to have it completed and scanned possibly tomorrow. Attached is the conditions page we are planning on attaching. Please review and provide any concerns or comments. The API for the well will be 30-045-35747.

Thank You

Brandon Powell Office: (505) 334-6178 ext. 116 "He who wishes to gain knowledge is wiser than he who thinks he has knowledge (unknown)"

From: Perrin, Charlie, EMNRD Sent: Tuesday, May 17, 2016 2:37 PM To: Vermersch, Amy H, EMNRD <AmyH.Vermersch@state.nm.us>; Powell, Brandon, EMNRD <Brandon.Powell@state.nm.us> Subject: FW: Proof of Public Notice for Western Refining SW, Inc. WDW-2 Class 1 Injection Well Discharge Permit Application (UICI-011)

From: Chavez, Carl J, EMNRD Sent: Tuesday, May 17, 2016 2:13 PM To: Hains, Allen <<u>Allen.Hains@wnr.com</u>> Cc: Gallegos, Denise, EMNRD <<u>Denise.Gallegos@state.nm.us</u>>; Griswold, Jim, EMNRD <<u>Jim.Griswold@state.nm.us</u>>; Perrin, Charlie, EMNRD <<u>charlie.perrin@state.nm.us</u>>; Goetze, Phillip, EMNRD <<u>Phillip.Goetze@state.nm.us</u>> Subject: RE: Proof of Public Notice for Western Refining SW, Inc. WDW-2 Class 1 Injection Well Discharge Permit Application (UICI-011)

Allen:

Hi. A few things Western needs to begin acting on are provided below.

- Western needs to obtain the API# for the well from Brandon Powell in the Aztec District Office so OCD may post in its Public Notice. Once you get it, forward the number over to me as I am working with Jim G to get the draft DP posted in Newspapers on or before COB Friday on 5/20 with requested post in Albuq. Journal and Farmington Daily for Sunday 5/22.
- 2) Brandon needs to issue an approval of the C-101 and C-102 Forms and include a Condition of Approval in the C-101 Form that the Entrada Fm. must be tested for TDS to determine water quality before OCD can authorize injection. There is scarce water quality information for the Entrada in San Juan County. OCD has incorporated language in the Draft DP to also highlight this requirement.

3) Once numbers 1 and 2 above are satisfied, Western needs to submit its financial bond. The amount provided in the Application Closure Plan is acceptable. Please procure a WQCC Well Bond (click <u>here</u>) for the approved amount and submit to OCD Santa Fe (Denise Gallegos at (505) 476-3453 or E-mail: <u>Denise.Gallegos@state.nm.us</u>).

Thank you.

Carl J. Chavez, CHMM Environmental Engineer Oil Conservation Division- Environmental Bureau 1220 South St. Francis Drive Santa Fe, New Mexico 87505 Phone: (505) 476-3490 Main Phone: (505) 476-3440 Fax: (505) 476-3462 E-mail: <u>Carl J. Chavez@state.nm.us</u> Website: <u>www.emnrd.state.nm.us/ocd</u> Why not prevent pollution, minimize waste, reduce operation costs, and move forward with the rest of the Nation? To see how, go to "Publications" and "Pollution Prevention" on the OCD Website.

From: Hains, Allen [mailto:Allen.Hains@wnr.com] Sent: Tuesday, May 17, 2016 1:40 PM To: Chavez, Carl J, EMNRD <<u>CarlJ.Chavez@state.nm.us</u>>; Griswold, Jim, EMNRD <<u>Jim.Griswold@state.nm.us</u>> Cc: Schmaltz, Randy <<u>Randy.Schmaltz@wnr.com</u>>; Robinson, Kelly <<u>Kelly.Robinson@wnr.com</u>> Subject: RE: Proof of Public Notice for Western Refining SW, Inc. WDW-2 Class 1 Injection Well Discharge Permit Application (UICI-011)

Carl,

We appreciate your help with this permit.

Looking forward, are there requirements that Western can be working on during the OCD public notice period?

Thank you,

Allen S. Hains Manager Remediation Projects

Western Refining 123 W. Mills Ave. El Paso, Texas 79901 915 534-1483 915 490-1594 (cell)

From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us] Sent: Tuesday, May 17, 2016 7:22 AM To: Donnelly, Patti <<u>Patti.Donnelly@wnr.com</u>> Cc: Schmaltz, Randy <<u>Randy.Schmaltz@wnr.com</u>>; Hains, Allen <<u>Allen.Hains@wnr.com</u>>; Robinson, Kelly

<<u>Kelly.Robinson@wnr.com</u>>; Griswold, Jim, EMNRD <<u>Jim.Griswold@state.nm.us</u>> **Subject:** RE: Proof of Public Notice for Western Refining SW, Inc. WDW-2 Class 1 Injection Well Discharge Permit Application (UICI-011)

This email was sent by an external sender. Please use caution when opening attachments, clicking web links, or replying until you have verified this email sender.

Patti:

Received.

FYI: 1 am working with Jim Griswold to begin OCD's public notice in the newspapers soon.

Thank you.

Carl J. Chavez, CHMM Environmental Engineer Oil Conservation Division- Environmental Bureau 1220 South St. Francis Drive Santa Fe, New Mexico 87505 Phone: (505) 476-3490 Main Phone: (505) 476-3440 Fax: (505) 476-3462 E-mail: <u>Carl J. Chavez@state.nm.us</u> Website: <u>www.emnrd.state.nm.us/ocd</u> Why not prevent pollution, minimize waste, reduce operation costs. and move forward with the rest of the Nation? To see how, go to "Publications" and "Pollution Prevention" on the OCD Website.

From: Donnelly, Patti [mailto:Patti.Donnelly@wnr.com] Sent: Monday, May 16, 2016 1:08 PM To: Chavez, Carl J, EMNRD <<u>CarlJ.Chavez@state.nm.us</u>> Cc: Schmaltz, Randy <<u>Randy.Schmaltz@wnr.com</u>>; Hains, Allen <<u>Allen.Hains@wnr.com</u>>; Robinson, Kelly <<u>Kelly.Robinson@wnr.com</u>> Subject: Proof of Public Notice for Western Refining SW, Inc. WDW-2 Class 1 Injection Well Discharge Permit Application (UICI-011)

Good afternoon! This is our submittal of proof of Public Notice for the WDW-2 Class 1 Injection Well Discharge Permit Application. The originals will be mailed to you Certified via the US Postal Service. If you have any questions or concerns, please do not hesitate to contact myself, Randy Schmaltz or Kelly Robinson.

Thank you, Patti Donnelly

Patti Donnelly Logistics, HSER Western Refining 111 CR 4990 Bloomfield, NM 87413 (505) 632-4005 patti.donnelly@wnr.com

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12 30 15	SUSPENSE 1410	ENGINEER	1-4-2016 LOGGED IN	SUD	PMAM1600432778
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ABOVE THIS LINE FOR DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION

- Engineering Bureau -1220 South St. Francis Drive, Santa Fe, NM 87505



ADMINISTRATIVE APPLICATION CHECKLIST

	THIS CHECKLIST IS M	ANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE
Appl	Ication Acronym	Si
1	[DHC-Down [PC-Po	ndard Location] [NSP-Non-Standard Proration Unit] [SD-Simultaneous Dedication] hhole Commingling] [CTB-Lease Commingling] [PLC-Pool/Lease Commingling] ol Commingling] [OLS - Off-Lease Storage] [OLM-Off-Lease Measurement] [WFX-Waterflood Expansion] [PMX-Pressure Maintenance Expansion] [SWD-Salt Water Disposal] [IPI-Injection Pressure Increase] lified Enhanced Oil Recovery Certification] [PPR-Positive Production Response]
	-	-SWD
[1]	TYPE OF AP [A]	PLICATION - Check Those Which Apply for [A] Location - Spacing Unit - Simultaneous Dedication NSL NSP SD - 5AN J4AN LEFINING CO 372.18
	Check	One Only for [B] or [C]
	[B]	Location - Spacing Unit - Simultaneous Dedication \square NSL \square NSP \square SD \square SD \square One Only for [B] or [C] Commingling - Storage - Measurement \square DHC \square CTB \square PLC \square PC \square OLS \square OLM \square OLM \square DHC \square CTB \square PLC \square PC \square OLS \square OLM \square Injection - Disposal - Pressure Increase - Enhanced Oil Recovery \square WFX \square PMX \square SWD \square IPI \square EOR \square PPR \square Other: Specify \square Other: Specify \square ON REQUIRED TO: - Check Those Which Apply, or Does Not Apply $\overleftarrow{\infty}$
	[C]	Injection - Disposal - Pressure Increase - Enhanced Oil Recovery Image: Switch and Swi
	[D]	Other: Specify
[2]	NOTIFICATI	ON REQUIRED TO: - Check Those Which Apply, or Does Not Apply
[-]	[A]	Working, Royalty or Overriding Royalty Interest Owners
	[B]	Image: Offset Operators, Leaseholders or Surface Owner $fool$
	[C]	Application is One Which Requires Published Legal Notice -5 Log $\overline{5} \text{ Grave tark de a}$
	[D]	Notification and/or Concurrent Approval by BLM or SLO U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office
	[E]	For all of the above, Proof of Notification or Publication is Attached, and/or,
	[F]	Waivers are Attached

[3] SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED ABOVE.

[4] **CERTIFICATION:** I hereby certify that the information submitted with this application for administrative approval is **accurate** and **complete** to the best of my knowledge. I also understand that **no action** will be taken on this application until the required information and notifications are submitted to the Division.

Note: Statement must be completed by an individual with managerial and/or supervisory capacity.

HSCANT / Engineer 12/15/2015 Title Date ohn C. Thompson Print or Type Name Signature e-mail Address

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, New Mexico 87505

APPLICATION FOR AUTHORIZATION TO INJECT

I.	PURPOSE: Secondary Recovery Pressure Maintenance X Disposal Storage Application qualifies for administrative approval? Yes No
11.	OPERATOR: San Juan Refining Co./Western Refining Southwest, Inc.
	ADDRESS: #50 County Road 4990, Bloomfield, NM 87413
	CONTACT PARTY:PHONE:
III.	WELL DATA: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.
IV.	Is this an expansion of an existing project? Yes XNo If yes, give the Division order number authorizing the project:
V.	Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.
VI.	Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.
VII.	Attach data on the proposed operation, including:
	 Proposed average and maximum daily rate and volume of fluids to be injected; Whether the system is open or closed; Proposed average and maximum injection pressure; Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and, If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).
*VIII.	Attach appropriate geologic data on the injection zone including appropriate lithologic detail, geologic name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such sources known to be immediately underlying the injection interval.
IX.	Describe the proposed stimulation program, if any.
*X.	Attach appropriate logging and test data on the well. (If well logs have been filed with the Division, they need not be resubmitted).
*XI.	Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.
XII.	Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.
XIII.	Applicants must complete the "Proof of Notice" section on the reverse side of this form.
XIV.	Certification: I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.
	NAME: John C. Thompson TITLE: <u>Agent/Engineer</u>
	SIGNATURE:

E-MAIL ADDRESS: john@walsheng.net
* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstances of the earlier submittal:

III. WELL DATA

- A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:
 - (1) Lease name; Well No.; Location by Section, Township and Range; and footage location within the section.
 - (2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.
 - (3) A description of the tubing to be used including its size, lining material, and setting depth.

(4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District Offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

- B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.
 - (1) The name of the injection formation and, if applicable, the field or pool name.
 - (2) The injection interval and whether it is perforated or open-hole.
 - (3) State if the well was drilled for injection or, if not, the original purpose of the well.
 - (4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.
 - (5) Give the depth to and the name of the next higher and next lower oil or gas zone in the area of the well, if any.

XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

- (1) The name, address, phone number, and contact party for the applicant;
- (2) The intended purpose of the injection well; with the exact location of single wells or the Section, Township, and Range location of multiple wells;
- (3) The formation name and depth with expected maximum injection rates and pressures; and,

(4) A notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505, within 15 days.

NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

INJECTION WELL DATA SHEET

Tu	bing Size:4-1/2", 10.5 ppfLining Material:Plastic Lined
Ту	De of Packer:7" Baker "FAB-1" (or similar model"
Pac	ker Setting Depth: <u>~ 7265'</u>
Oth	her Type of Tubing/Casing Seal (if applicable): Baker Model "KBH-22" Anchor tubing seal assembly, landed in packer
	Additional Data
1.	Is this a new well drilled for injection? <u>X</u> Yes <u>No</u> If no, for what purpose was the well originally drilled?
2.	Name of the Injection Formation: <u>Entrada</u>
3.	Name of Field or Pool (if applicable):
4.	Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used.
5.	Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area: <u>Pictured Cliffs, Chacra, Mesaverde, Gallup, Dakota</u>

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Side 1	INJEC	CTION WELL DATA SI	HEET		
OPERATOR:	Western Refining Southwest, Inc.				
WELL NAME & NUME	BER: <u>SWD #2</u>				
WELL LOCATION:	2028' FNL & 111' FEL FOOTAGE LOCATION	H UNIT LETTER	27 SECTION	<u> </u>	<u>R11W</u> RANGE
<u>WELLB</u>	<u>ORE SCHEMATIC</u>		<u>WELL C</u> Surface	<i>ONSTRUCTION DAT</i> Casing	<u>4</u>
		Hole Size:	17-1/2"	Casing Size: <u>13-</u>	3/8, 48 ppf, H40
Date Drawn: Dec :		Cemented with: _	<u>394</u> sx.	or <u>548</u>	ft ³
		Top of Cement: _	Surface	Method Determined	l:
17-1/2" Hole			Intermedia	te Casing	
	13-3/8", 48#, H40 ~ 300	Hole Size:	12-1/4"	Casing Size: 9-5	/8", 36#, J55
		Cemented with: _	857 sx	or <u>1693</u>	ft ³
		Top of Cement: _	Surface	Method Determined	l:
12-1/4" Hole	9-5/8", 36#, J55 ~ 3600'		· <u>Productio</u>	n Casing	
	DV tool at 4000' KB	Hole Size:	8-3/4"	Casing Size: <u>7</u> '	<u>, 26 ppf, L80</u>
	Injection String	Cemented with:	<u>868</u> sx.	or1692	ft ³
	4-1/2", 11.6#, L80, IPC	Top of Cement:	Surface	Method Determined	1:
	IPC FB Packer at ~ 7265 '	Total Depth:	~ 7500'		. \
	Proposed Injection Zone:	· ·	Injection Inter	val (Proposed) 7483) - Riblisled
8-3/4" O Hole O	Entrada Sandstone: 7315' - 7483'			et to <u>7482 (per</u>	forated 4 spf)
Prod Csg @	7500' 'KB 7", 23#, J55		(Perforated or Open I	Hole; indicate which)	

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San Juan Refining Co./Western Refining Southwest, Inc.

SWD #2

C-108 Data Sheet

V. See Attached Map

VI. See Attached Tabulation Sheet

VII. Operation Data

- A. Average Daily Injection Rate = 3,500 bbls
 B. Maximum Daily Injection Rate = 8,500 bbls
- 2. The system is closed (water will be collected onsite as part of the refinery process and pumped over to the injection well)
- 3. Proposed pressures
 - A. The average and maximum injection pressures will be determined from a step rate test run after the well is completed. The anticipated injection pressures are \sim 2000 psi.
- 4. The fluid to be disposed of will be non-hazardous treated water generated from the Bloomfield Terminal (former Refinery). Representative water analysis for each formation are attached.
- 5. A water sample and corresponding water analysis will be provided once the well is perforated and a water sample can be obtained. The closest off set is the Ashcroft SWD #1 (API# 30-045-30788) located approximately 3/4 miles to the east of the proposed Western SWD #1. The Ashcroft is a SWD well operated by XTO Energy Resources and is completed in the Entrada and Bluff formations. The NMOCD records did not containing any data regarding the in-situ water quality found in the Ashcroft SWD #1 prior to injection. However, water analysis of the recently drilled TnT SWD #1, located in the southern portion of the San Juan Basin are included. Additional geologic properties of the Entrada formation are attached.

VIII. Geology

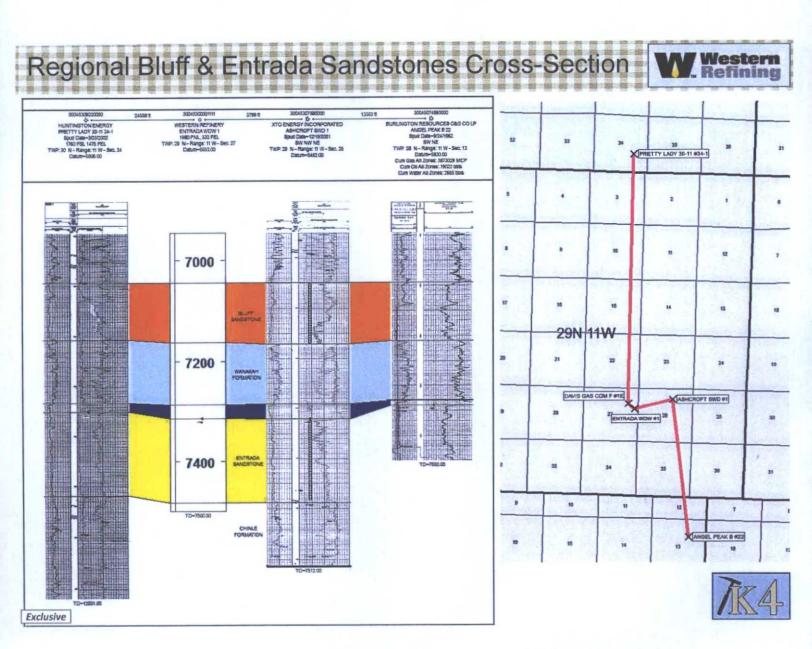
The Entrada Sandstone formation is Jurassic in age and is described as a wind blown deposit with fine to coarse-grained sandstone particles, clean and well sorted. Generally, the Entrada Sandstone formation is 200 to 280 ft thick throughout the San Juan Basin. Natural fractures are few to nonexistent.

The overlaying formation is the Todilto Limestone. Cores from the oil bearing portion of the Entrada formation indicate high porosities and permeability's with averages ranging from 22 - 26 percent and 150 - 450 millidarcies respectively. A cross section showing the regional thickness and log characteristics is included (below).

April 15, 2016 - Fiuid capacity

San Juan Refining Co./Western Refining Southwest, Inc. has approximately 70 ground water monitoring wells located within the refinery terminal (map of well locations is attached for reference). A sampling of the seven closest monitoring wells indicates an average depth to ground water to be approximately 24 ft.

Based on the attached comprehensive water analysis for the treated refinery water to be disposed the approximate TDS is 1220 mg/L.



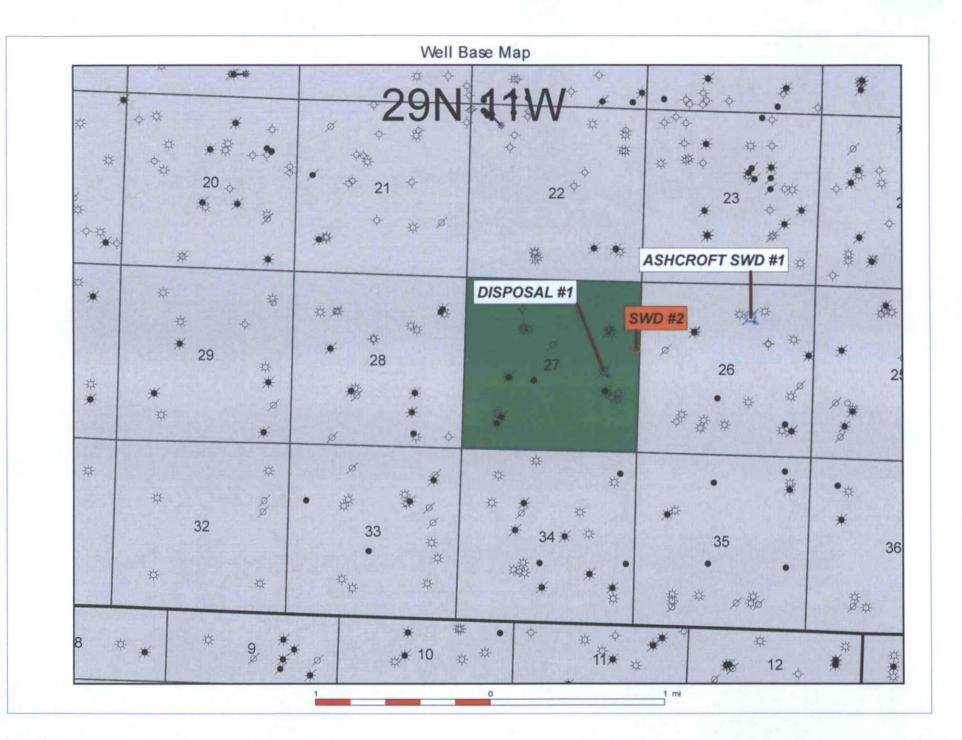
IX. After the well is drilled, cased and perforated a injectivity test will be performed. If the injection rate is less than 6 BPM prior to parting pressure, the well will be stimulated w/ approximately 222,000 lbs of 20/40 white sand in 110,000 gals of 30# cross linked gel at 50 bpm. Note: actual job design (if needed) will be based on actual results of the injectivity test.

X. All open hole and cased hole logs will be filed with NMOCD once the well is drilled and completed.

XII. Based on the information available online as well as information from the "Four Corners Geological Society" there are no known faults located in the area of the proposed well. Natural fractures are few to nonexistent in the Entrada formation. The overlaying formation is the relatively impermeable Todilto Limestone. The closest off set is the Ashcroft SWD #1 (API# 30-045-30788) located approximately ¾ of mile to the east of the proposed SWD #1. The Ashcroft SWD #1 is a SWD well operated by XTO Energy and is completed in the Bluff and Entrada formations and has no evidence of water migrating out of the injection zones.

XIII. See attached certified mail receipts.

	Well Base Map
Image: Disposal T	
and the second sec	1 0 1 2 3 mi



eologic Prognosis	_		ff WDW, San Juan	· · · · · · · ·		ទទាំពី៣ពី៣៣
	Entrada/Bluff WDW Pending Entrada & Bluff FM TWP: 29 N - Range: 1980 FNL, 330 FEL Same as Surface	Water Disposal 1 11 W - Sec. 27	Latitude (NAD 83): Longitude (NAD 83): Field: County: State: GL Elevation: KB Elevation: Proposed TD: Proposed Pluoback:	36,698499 -107.971156 Basin San Juan New Mexico 5538 5550 7500		November 25, 2 Geologist: Peter Kor
Depth:						Depositional
Formation Tops		Top Subsea (KB)		Rock Type	Drilling Notes Boulders, water, lost	Environment
Quaternary Alluvium	0 1	5550	10	Unconsolidated Gravels	cirriculation	Continental Rivers
Naciemento FM	10	5540	505	Shale & Sandstone	Water, gas	Continental Rivers
Ojo Alamo Sandstone	ə 515	5035	110	Sandstone & Shale	Water, gas	Continental Rivers
Kirtland Sha'e	625	4925	578	Interbeddded Shale, sandstone	Water, gas	Coastal to Alluvial Plain
				Interbeddded Shale,	<u> </u>	
Fruitland FM		4347	515	sandstone & coal	Coalbed methane	Coastal Plain Regressive Marine
Pictured Cliffs Sandstone	1718	3832	162	Sandstone	Gas, water	Beach
Lewis Shale	1880	3670	780	Shale, thin limestones	Gas	Offshore Marine
Huerfanito Bentonite Bed	2660	2890	28	Alterted volcanic ash, bentonite bed	Swelling clay	Volcanic Ash Laye
Chacra FM		2862	189	Sandstone, siltstone	Gas. Water	Offshore Marine Sands
Lower Lewis Shale	2877		458	Shale, thin limestones	Gas, Water	Offshore Marine Transgressive Mar
Cliff House Sandstone	3335	2215	59	Sandstone	Gas, Water, Oil	Beach
Menefee Member	r 3394	2156	643	Interbeddded Shale, sandstone & coal	Gas, Water, Oil	Coastal Plain
						Regressive Marine
Point Lookout Sandstone		1513	386	Sandstone Shale, thin sandstones &	Gas, Water, Oil	Beach
Mancos Sha'e	4423	1127	869	siltstones Interbeddded Shale,	Gas, Water, Oil	Offshore Marine Offshore Marine
Niobrara A	5292	258	102	sandstone	Oil, Gas, Water	Sands
Niobrara 8	5394	, 156	123	Interbeddded Shale, sandstone	Oil, Gas, Water	Offshore Marine Sands
		33	82	Interbeddded Shale, sandstone	Oil, Gas, Water	Offshore Marine Sands
Niobrara C			-	Interbeddded Shale,		Regressive Marine
Gallup FM	5599	-49	243	sandstone	Oil. Gas, Water	Coastal Deposit
Juana Lopez FM	1 5842	-292	123	Shale, thin limestones	Oil, Gas, Water	Offshore Marine
Carlile Shale	5965	-415	95	Shale, thin limestones	Oil, Gas, Water	Offshore Marine
Greenhorn Limestone		-510	. 56	Limestone	Oil, Gas, Water	Offshore Marine
Graneros Shale	<u> </u>	-566	33	Shale	Oil, Gas, Water	Offshore Marine Transgressive Coa
Dakota FM	1 6149	-599	216	Sandstone, shale & coals Sandstones, some	Oil, Gas, Water	Plain to Marine
Burro Canyon FM	6365	-815	46	conglomerate & mudstone	Oil, Gas, Water	Braided Fluvial Fit
Momson FM	6411	-861	635	Mudstones, sandstone	Oil, Gas, Water	Continental Rivers
Bluff Sandstone (aka Junction Creek Sandstone), Morrison FM Member		-1496	118	Sandstone	Oil, Gas, Water	Alluvial Plain and Eolian
Wanakah FM	7164	-1614	123	Siltstone, Sandstone	Oil, Gas, Water	Alluvial Plain and Eolian
Todilto Limestone & Anhydrite	7287	-1737	28	Interbedded Limestone & Anhydrite	Oil, Gas, Water, Anyhydrite	Alluvial Plain and Eolian
Entrada Sandstone	7315	-1765	168	Sandstone Interbeddded Shale,	Oil, Gas, Water	Eolian Sand Dun
Chinle FM	1 7483	-1933	17	sandstone	Oil, Gas, Water	Continental Rivers
Proposed TD	7500	-1950		TD designed for complete I	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·

1/2 Mile Radius



Enerdeq Browser Date: Nov 23, 2015 Author: JOHN THOMPSON

Western Refining SWD #2 Well Tabulation Sheet

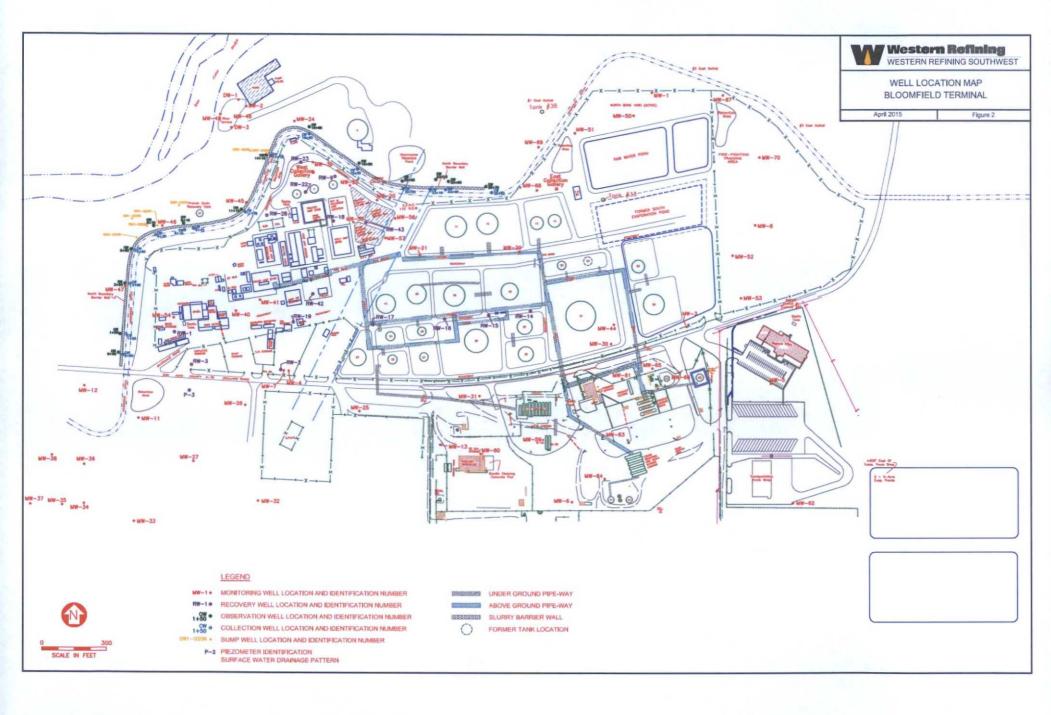
Operator Name	Lease Name	Well Num	Primary API	Location	First Prod Date	TD	Status Na L	lpper Perf	Lower Perf
SAN JUAN REFINING COI	MPA DISPOSAL	1	30045290020000	29N 11W 27I NW NE SE			P&A	3276	3514
BP AMERICA PRODUCTIO	ON C DAVIS GAS COM F	1	30045078250000	29N 11W 27I SW NE SE	1960-12-01	6365	P&A	6215	6240
BURLINGTON RESOURCE	ES OF CALVIN	1	30045120030000	29N 11W 26M SW SW	1963-03-01	6450	ACTIVE	6176	6348
XTO ENERGY INCORPOR	ATEL DAVIS GAS COM G	1	30045235540000	29N 11W 27I SW NE SE	1981-01-01	2951	P&A	2827	2839
XTO ENERGY INCORPOR	ATEI SULLIVAN GAS COM D	1E	30045240830000	29N 11W 26F NW SE NW	1980-09-01	632 9	ACTIVE	6086	6242
XTO ENERGY INCORPOR	ATEI DAVIS GAS COM F	1E	30045240840000	29N 11W 27H NW SE NE	1981-05-01	6386	ACTIVE	6163	6262
XTO ENERGY INCORPOR	ATEI DAVIS GAS COM F	1E	30045240840000	29N 11W 27H NW SE NE	1981-06-01	6386	ACTIVE	2701	2810
HOLCOMB OIL & GAS IN	COR DAVIS GAS COM J	1	30045253290000	29N 11W 26F NW SE NW	2008-04-01		ACTIVE	1462	1645
HOLCOMB OIL & GAS IN	COR DAVIS GAS COM J	1	30045253290000	29N 11W 26F NW SE NW	1985-02-01	4331	INACTIVE	3970	4030
XTO ENERGY INCORPOR	ATEI DAVIS GAS COM J	1	30045253290000	29N 11W 26F NW SE NW	1983-05-01	4331	INACTIVE	2631	2772
XTO ENERGY INCORPOR	ATEI DAVIS GAS COM F	1R	30045308330001	29N 11W 27I SW NE SE	2002-05-01		ACTIVE	5314	5646
XTO ENERGY INCORPOR	ATEL DAVIS GAS COM F	1R	30045308330000	29N 11W 27I SW NE SE	2002-03-01		ACTIVE	6177	6308
HOLCOMB OIL & GAS IN	COR JACQUE	2	30045344090000	29N 11W 27H NW SE NE	2008-01-01	1897	ACTIVE	1483	1689
HOLCOMB OIL & GAS IN	COR JACQUE	1	30045344630000	29N 11W 27L	2008-02-01	1890	ACTIVE	1543	1714

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San Juan Refining Co./Western Refining Southwest

Monitor Well Information

(ft)	(ft amsl)
15	5502.2
31	5502.9
16	5502.1
33	5502.6
35	5502.5
18	5502.1
22	5502.4
	15 31 16 33 35 18



Comprehensive Water Analysis

non-hazardous, treated water from Western Refinery facility – Bloomfield, NM

Analytical Report Lab Order 1507094 Date Reported: 8/6/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Project: Injection Well 7-1-15

1507094-001

Lab ID:

Client Sample ID: Injection Well Collection Date: 7/1/2015 9:00:00 AM Received Date: 7/2/2015 7:00:00 AM

Suitate 65 5.0 mg/L 10 7/2/2015 5.06.31 PM R272 SM2510B: SPECIFIC CONDUCTANCE Analyst: JRR Conductivity 2000 0.010 µmhos/cm 1 7/6/2015 11:31:77 AM R273 SM2320B: ALKALINTY Analyst: JRR Analyst: JRR Bicarbonate (As CaCO3) 274.6 20.00 mg/L CaCO3 1 7/6/2015 11:31:77 AM R273 SM2540C MOD: TOTAL DISSOLVED SOLIDS Analyst: KS Total Dissolved Solids 2020 mg/L 1 7/6/2015 11:31:77 AM R273 SM4500.H+B: PH 7.45 1.68 H pH units 1 7/6/2015 4:75 IPM 2012 SM4500.H+B: PH 7.45 1.68 H pH units 1 7/6/2015 1:03:1PM 2017 Recruy ND 0.010 mg/L 5 7/6/2015 4:7.51 PM 2010 Gandmum 0.27 0.020 mg/L 1 7/9/2015 10:5.12 AM 2010	Analyses	Result	RLQ	Qual	Units	DF	Date Analyzed	Batch	
Suitate 65 5.0 mg/L 10 7/2/2015 5.06.31 PM R272 SM2510B: SPECIFIC CONDUCTANCE Analyst: JRR Conductivity 2000 0.010 µmhos/cm 1 7/6/2015 11:31:77 AM R273 SM2320B: ALKALINTY Analyst: JRR SM2320B: ALKALINTY Analyst: JRR Bicarbonate (As CaCO3) 274.6 20.00 mg/L CaCO3 1 7/6/2015 11:31:77 AM R273 SM2540C MOD: TOTAL DISSOLVED SOLIDS Analyst: KS Total Dissolved Solids 1220 40.0 mg/L 1 7/6/2015 11:31:71 AM R273 SM4500-HHB: PH Analyst: JRR PH 7.45 1.68 H pH units 1 7/6/2015 10:3:64 AM 2010 Barium 0.27 0.020 mg/L 1 7/9/2015 10:3:14 AM 2010 Gardinium ND 0.020 mg/L 1 7/9/2015 10:3:16 AM 2010 Gardium 0.27 0.020 mg	EPA METHOD 300.0: ANIONS						Analyst:	LGT	
SM2510B: SPECIFIC CONDUCTANCE Analyst: JRR Conductivity 2000 0.010 µmhos/cm 1 7/6/2015 11:31:17 AM R273 SM2320B: ALKALINITY Analyst: JRR Bicarbonate (As CaCO3) 274.6 20.00 mg/L CaCO3 1 7/6/2015 11:31:17 AM R273 Carbonate (As CaCO3) ND 2.000 mg/L CaCO3 1 7/6/2015 11:31:17 AM R273 SM2540C MOD: TOTAL DISSOLVED SOLIDS Analyst: JRR Total Alkalnity (as CaCO3) 274.6 20.00 mg/L CaCO3 1 7/6/2015 11:31:17 AM R273 SM2540C MOD: TOTAL DISSOLVED SOLIDS Analyst: JRR Total Alkalnity (as CaCO3) 120 40.0 mg/L 1 7/6/2015 11:31:17 AM R273 SM2540C MOD: TOTAL RECURY Analyst: JRR Mercury ND 0.0010 mg/L 1 7/6/2015 10:31:23 AM 2010 Cadmium 0.27 0.20 mg/L 1 7/9/2015 10:51:23 AM <td< td=""><td>Chloride</td><td>480</td><td>50</td><td></td><td>mg/L</td><td>100</td><td>7/2/2015 5:18:55 PM</td><td>R27295</td></td<>	Chloride	480	50		mg/L	100	7/2/2015 5:18:55 PM	R27295	
Conductivity 2000 0.010 µmhos/cm 1 7/6/2015 11:31:17 AM R273 SM2320B: ALKALINITY Fall Canductivity 2000 mg/L CaCO3 1 7/6/2015 11:31:17 AM R273 Bicarbonate (As CaCO3) ND 2.000 mg/L CaCO3 1 7/6/2015 11:31:17 AM R273 Carbonate (As CaCO3) 274.6 20.00 mg/L CaCO3 1 7/6/2015 11:31:17 AM R273 SM2540C MOD: TOTAL DISSOLVED SOLIDS Fall Stati Alkalinity (as CaCO3) 274.6 20.00 mg/L 1 7/6/2015 11:31:17 AM R273 SM2540C MOD: TOTAL DISSOLVED SOLIDS Fall Fall 7.45 1.68 H pH 1 7/6/2015 11:31:17 AM R273 SM4500-H+B: PH Full 7.45 1.68 H pH units 1 7/6/2015 11:31:17 AM R273 Garony ND 0.0010 mg/L 1 7/6/2015 11:31:17 AM R273 Batium 7.45 1.68 H pH units 1 7/6/2015 11:31:17 AM R273<	Sulfate	65	5.0		mg/L	10	7/2/2015 5:06:31 PM	R27295	
SM2320B: ALKALINITY Analyst JRR Bicarbonate (As CaCO3) 274.6 20.00 mg/L CaCO3 1 7/6/2015 11:31:17 AM R273 Carbonate (As CaCO3) ND 2.000 mg/L CaCO3 1 7/6/2015 11:31:17 AM R273 Total Alkafinity (as CaCO3) 274.6 20.00 mg/L CaCO3 1 7/6/2015 11:31:17 AM R273 SM2540C MOD: TOTAL DISSOLVED SOLIDS Malyst: JRR Analyst: JRR pH 7.45 1.68 H pH units 1 7/6/2015 11:31:17 AM R273 EPA METHOD 7470: MERCURY Analyst: JRR Mercury ND 0.0010 mg/L 5 7/8/2015 14:37.4M 2015 Barium 0.27 0.020 mg/L 1 7/9/2015 10:51:23 AM 2010 Carbium ND 0.0020 mg/L 1 7/9/2015 10:51:23 AM 2010 Cadmium ND 0.0020 mg/L 1 7/9/2015 10:51:23 AM 2010 <t< td=""><td>SM2510B: SPECIFIC CONDUCTANC</td><td>E</td><td></td><td></td><td></td><td></td><td>Analyst:</td><td>JRR</td></t<>	SM2510B: SPECIFIC CONDUCTANC	E					Analyst:	JRR	
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SM254OC MOD: TOTAL DISSOLVED SOLIDS Analyst. Kal Total Dissolved Solids 1220 40.0 mg/L 1 7/8/2015 5.09:00 PM 2012 SM4500-H+B: PH Image: Comparison of the compar	Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	7/6/2015 11:31:17 AM	R27329	
Total Dissolved Solids 1220 40.0 mg/L 1 7/8/2015 5:09:00 PM 2012 SM4500-H+B: PH Analyst JRR pH 7.45 1.68 H pH units 1 7/8/2015 11:31:17 AM R273 EPA METHOD 7470: MERCURY Analyst JLF Mercury ND 0.0010 mg/L 5 7/8/2015 14:47:51 PM 2015 EPA 6010B: TOTAL RECOVERABLE METALS Analyst MEED Arsenic ND 0.020 mg/L 1 7/9/2015 10:51:23 AM 2010 Gadmium 0.27 0.020 mg/L 1 7/9/2015 10:51:23 AM 2010 Calcium 120 5.0 mg/L 1 7/9/2015 10:51:23 AM 2010 Calcium ND 0.0020 mg/L 1 7/9/2015 10:51:23 AM 2010 Calcium ND 0.0050 mg/L 1 7/9/2015 10:51:23 AM 2010 Calcium ND 0.0050 mg/L 1		274.6	20.00		mg/L CaCO3	1	7/6/2015 11:31:17 AM	R27329	
SM4500-H+B: PH Analyst: JRR pH 7.45 1.68 H PH units 1 7/6/2015 11:31:17 AM R273 EPA METHOD 7470: MERCURY Analyst: JLF Mercury ND 0.0010 mg/L 5 7/8/2015 14:7:51 PM 2015 EPA 6010B: TOTAL RECOVERABLE METALS Arsenic ND 0.020 mg/L 1 7/9/2015 10:51:23 AM 2010 Gadmium 0.020 mg/L 1 7/9/2015 10:51:23 AM 2010 Calcium ND 0.020 mg/L 1 7/9/2015 10:51:23 AM 2010 Calcium ND 0.0000 mg/L 1 7/9/2015 10:51:23 AM 2010 Calcium ND 0.0050 mg/L 1 7/9/2015 10:51:23 AM 2010 Conadisti <t< td=""><td>SM2540C MOD: TOTAL DISSOLVED</td><td>SOLIDS</td><td></td><td></td><td></td><td></td><td>Analyst:</td><td>KS</td></t<>	SM2540C MOD: TOTAL DISSOLVED	SOLIDS					Analyst:	KS	
pH 7.45 1.68 H pH units 1 7/6/2015 11:31:17 A R273 EPA METHOD 7470: MERCURY Analyst: JLF Mercury ND 0.0010 mg/L 5 7/8/2015 14:47:51 PM 2015 EPA 6010B: TOTAL RECOVERABLE METALS Arsenic ND 0.020 mg/L 1 7/9/2015 10:51:23 AM 2010 Gadinium 0.27 0.000 mg/L 1 7/9/2015 10:51:23 AM 2010 Cadicium ND 0.020 mg/L 1 7/9/2015 10:51:23 AM 2010 Cadicium ND 0.00050 mg/L 1 7/16/2015 12:328 PM 2010 Calcium ND 0.050 mg/L 1 7/9/2015 10:51:23 AM 2010 Calcium ND 0.0050 <th c<="" td=""><td>Total Dissolved Solids</td><td>1220</td><td>40.0</td><td>٠</td><td>mg/L</td><td>1</td><td>7/8/2015 5:09:00 PM</td><td>20129</td></th>	<td>Total Dissolved Solids</td> <td>1220</td> <td>40.0</td> <td>٠</td> <td>mg/L</td> <td>1</td> <td>7/8/2015 5:09:00 PM</td> <td>20129</td>	Total Dissolved Solids	1220	40.0	٠	mg/L	1	7/8/2015 5:09:00 PM	20129
EPA METHOD 7470: MERCURY Analyst JLF Mercury ND 0.0010 mg/L 5 7/8/2015 4:47:51 PM 2015 EPA 6010B: TOTAL RECOVERABLE METALS Analyst MED Arsenic ND 0.020 mg/L 1 7/9/2015 10:51:23 AM 2010 Barium 0.27 0.020 mg/L 1 7/9/2015 10:51:23 AM 2010 Cadmium ND 0.0020 mg/L 1 7/16/2015 1:21:3:28 PM 2010 Calcium 120 5.0 mg/L 1 7/14/2015 3:52:06 PM 2010 Lead ND 0.0060 mg/L 1 7/14/2015 10:51:23 AM 2010 Magnesium 28 1.0 mg/L 1 7/9/2015 10:51:23 AM 2010 Selenium ND 0.0050 mg/L 1 7/9/2015 10:51:23 AM 2010 Selenium ND 0.0050 mg/L 1 7/16/2015 12:13:28 PM 2010 Silver ND 0.0050 mg/L 1	SM4500-H+B: PH						Analyst:	JRR	
Mercury ND 0.0010 mg/L 5 7/8/2015 4:47:51 PM 2015 EPA 6010B: TOTAL RECOVERABLE METALS Analyst MED Arsenic ND 0.020 mg/L 1 7/9/2015 10:51:23 AM 2010 Barium 0.27 0.020 mg/L 1 7/9/2015 10:51:23 AM 2010 Cadmium ND 0.0020 mg/L 1 7/16/2015 12:1:328 PM 2010 Cadicium 120 5.0 mg/L 5 7/9/2015 10:51:23 AM 2010 Calcium ND 0.0050 mg/L 1 7/14/2015 3:52:06 PM 2010 Clacium ND 0.0050 mg/L 1 7/9/2015 10:51:23 AM 2010 Lead ND 0.0050 mg/L 1 7/9/2015 10:51:23 AM 2010 Selenium ND 0.055 mg/L 1 7/16/2015 12:13:28 PM 2010 Silver ND 0.0050 mg/L 1 7/16/2015 12:13:28 PM 2010 Sodium	рН	7.45	1.68	Н	pH units	1	7/6/2015 11:31:17 AM	R27329	
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ArsenicND0.020mg/L17/9/2015 10:51:23 AM2010Barium0.270.020mg/L17/9/2015 10:51:23 AM2010CadmiumND0.0020mg/L17/16/2015 12:13:28 PM2010Calcium1205.0mg/L17/16/2015 12:13:28 PM2010ChromiumND0.0060mg/L17/14/2015 3:52:06 PM2010LeadND0.0050mg/L17/9/2015 10:51:23 AM2010Magnesium281.0mg/L17/9/2015 10:51:23 AM2010Potassium7.71.0mg/L17/9/2015 10:51:23 AM2010SeleniumND0.050mg/L17/16/2015 12:13:28 PM2010SoliwerND0.050mg/L17/16/2015 12:13:28 PM2010Solium2805.0mg/L17/16/2015 12:13:28 PM2010Solium2805.0mg/L17/16/2015 12:13:28 PM2010Solium2805.0mg/L17/16/2015 12:03:0PM2009AcenaphtheneND10µg/L17/10/2015 1:30:30 PM2009AcenaphtheneND10µg/L17/10/2015 1:30:30 PM2009AnilineND10µg/L17/10/2015 1:30:30 PM2009AcenaphthyleneND10µg/L17/10/2015 1:30:30 PM2009AzobenzeneND10µg/L17/1	Mercury	ND	0.0010		mg/L	5	7/8/2015 4:47:51 PM	20158	
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Cadmium ND 0.0020 mg/L 1 7/16/2015 12:13:28 PM 2010 Calcium 120 5.0 mg/L 5 7/9/2015 1:02:36 PM 2010 Chromium ND 0.0060 mg/L 1 7/14/2015 3:52:06 PM 2010 Lead ND 0.0050 mg/L 1 7/9/2015 10:51:23 AM 2010 Magnesium 28 1.0 mg/L 1 7/9/2015 10:51:23 AM 2010 Potassium 7.7 1.0 mg/L 1 7/9/2015 10:51:23 AM 2010 Selenium ND 0.050 mg/L 1 7/16/2015 12:13:28 PM 2010 Silver ND 0.050 mg/L 1 7/16/2015 12:13:28 PM 2010 Sodium 280 5.0 mg/L 1 7/16/2015 12:13:28 PM 2010 Sodium 280 5.0 mg/L 1 7/16/2015 1:2:3:28 PM 2010 Acenaphthene ND 10 µg/L 1 7/10/2015 1:3:3:0 PM	Arsenic	ND	0.020		mg/L	1	7/9/2015 10:51:23 AM	20102	
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Magnesium 28 1.0 mg/L 1 7/9/2015 10:51:23 AM 2010 Potassium 7.7 1.0 mg/L 1 7/9/2015 10:51:23 AM 2010 Selenium ND 0.050 mg/L 1 7/16/2015 12:13:28 PM 2010 Silver ND 0.0050 mg/L 1 7/16/2015 12:13:28 PM 2010 Sodium 280 5.0 mg/L 1 7/16/2015 12:13:28 PM 2010 Sodium 280 5.0 mg/L 5 7/9/2015 1:02:36 PM 2010 EPA METHOD 8270C: SEMIVOLATILES Acenaphthene ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Acenaphthylene ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Aniline ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Acenaphthylene ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Aniline ND 10 µg/L	Chromium	ND	0.0060		mg/L	1	7/14/2015 3:52:06 PM	20102	
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Selenium ND 0.050 mg/L 1 7/16/2015 12:13:28 PM 2010 Silver ND 0.0050 mg/L 1 7/16/2015 12:13:28 PM 2010 Sodium 280 5.0 mg/L 1 7/16/2015 12:13:28 PM 2010 EPA METHOD 8270C: SEMIVOLATILES X Analyst DAM Acenaphthene ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Acenaphthylene ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Aniline ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Anthracene ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Azobenzene ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Benz(a)anthracene ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Benzo(a)pyrene ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009	Magnesium	28	1.0		mg/L	1	7/9/2015 10:51:23 AM	20102	
Silver ND 0.0050 mg/L 1 7/16/2015 12:13:28 PM 2010 Sodium 280 5.0 mg/L 5 7/9/2015 1:02:36 PM 2010 EPA METHOD 8270C: SEMIVOLATILES Acenaphthene ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Acenaphthene ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Acenaphthylene ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Aniline ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Anthracene ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Azobenzene ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Benz(a)anthracene ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Benzo(a)pyrene ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Benzo(b)filuoranthene ND 10 µ	Potassium	7.7	1.0		mg/L	1	7/9/2015 10:51:23 AM	20102	
Sodium 280 5.0 mg/L 5 7/9/2015 1:02:36 PM 2010 EPA METHOD 8270C: SEMIVOLATILES Acenaphthene ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Acenaphthylene ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Aniline ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Anthracene ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Azobenzene ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Benz(a)anthracene ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Benzo(a)pyrene ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Benzo(b)fluoranthene ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Benzo(b)fluoranthene ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Benzo(b)fluoranthene	Selenium	ND	0.050		mg/L	1	7/16/2015 12:13:28 PM	20102	
EPA METHOD 8270C: SEMIVOLATILES Analyst: DAM Acenaphthene ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Acenaphthylene ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Aniline ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Anthracene ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Azobenzene ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Benz(a)anthracene ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Benzo(a)pyrene ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Benzo(b)fluoranthene ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009	Silver	ND	0.0050		mg/L	1	7/16/2015 12:13:28 PM	20102	
AcenaphtheneND10μg/L17/10/2015 1:30:30 PM2009AcenaphthyleneND10μg/L17/10/2015 1:30:30 PM2009AnilineND10μg/L17/10/2015 1:30:30 PM2009AnthraceneND10μg/L17/10/2015 1:30:30 PM2009AzobenzeneND10μg/L17/10/2015 1:30:30 PM2009Benz(a)anthraceneND10μg/L17/10/2015 1:30:30 PM2009Benzo(a)pyreneND10μg/L17/10/2015 1:30:30 PM2009Benzo(b)fluorantheneND10μg/L17/10/2015 1:30:30 PM2009	Sodium	280	5.0		mg/L	5	7/9/2015 1:02:36 PM	20102	
Acenaphthylene ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Aniline ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Anihracene ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Azobenzene ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Benz(a)anthracene ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Benz(a)anthracene ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Benzo(a)pyrene ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Benzo(b)fluoranthene ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009	EPA METHOD 8270C: SEMIVOLATIL	ES					Analyst:	DAM	
Aniline ND 10 μg/L 1 7/10/2015 1:30:30 PM 2009 Anthracene ND 10 μg/L 1 7/10/2015 1:30:30 PM 2009 Azobenzene ND 10 μg/L 1 7/10/2015 1:30:30 PM 2009 Benz(a)anthracene ND 10 μg/L 1 7/10/2015 1:30:30 PM 2009 Benzo(a)pyrene ND 10 μg/L 1 7/10/2015 1:30:30 PM 2009 Benzo(a)pyrene ND 10 μg/L 1 7/10/2015 1:30:30 PM 2009 Benzo(b)fluoranthene ND 10 μg/L 1 7/10/2015 1:30:30 PM 2009	Acenaphthene	ND	10		µg/L	1	7/10/2015 1:30:30 PM	20095	
AnthraceneND10μg/L17/10/2015 1:30:30 PM2009AzobenzeneND10μg/L17/10/2015 1:30:30 PM2009Benz(a)anthraceneND10μg/L17/10/2015 1:30:30 PM2009Benzo(a)pyreneND10μg/L17/10/2015 1:30:30 PM2009Benzo(b)fluorantheneND10μg/L17/10/2015 1:30:30 PM2009	Acenaphthylene	ND	10		μg/Ľ	1	7/10/2015 1:30:30 PM	20095	
Azobenzene ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Benz(a)anthracene ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Benzo(a)pyrene ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Benzo(a)pyrene ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009 Benzo(b)fluoranthene ND 10 µg/L 1 7/10/2015 1:30:30 PM 2009	Aniline	ND	10		µg/L	1	7/10/2015 1:30:30 PM	20095	
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Benzo(a)pyrene ND 10 μg/L 1 7/10/2015 1:30:30 PM 2009 Benzo(b)fluoranthene ND 10 μg/L 1 7/10/2015 1:30:30 PM 2009	Azobenzene	ND	10		µg/L	1	7/10/2015 1:30:30 PM	20095	
Benzo(b)fluoranthene ND 10 μg/L 1 7/10/2015 1:30:30 PM 2009	Benz(a)anthracene	ND	10		µg/L	1	7/10/2015 1:30:30 PM	20095	
	Benzo(a)pyrene	ND	10		μg/L	1	7/10/2015 1:30:30 PM	20095	
Benzo(g,h,i)perylene ND 10 μg/L 1 7/10/2015 1:30:30 PM 2009	Benzo(b)fluoranthene	ND	10		µg/L	1	7/10/2015 1:30:30 PM	20095	
	Benzo(g,h,i)perylene	ND	10		µg/L	1	7/10/2015 1:30:30 PM	20095	

Matrix: AQUEOUS

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

 Qualifiers:
 *
 Value exceeds Maximum Contaminant Level.

 D
 Sample Diluted Due to Matrix

 H
 Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

- J Analyte detected below quantitation limits Page 1 of 20
- P Sample pH Not In Range
- RL Reporting Detection Limit

Date Reported: 8/6/2015 _____ Client Sample ID: Injection Well Collection Date: 7/1/2015 9:00:00 AM 1507094-001 Matrix: AQUEOUS Received Date: 7/2/2015 7:00:00 AM **RL** Qual Units Result DF Date Analyzed Batch

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Injection Well 7-1-15 **Project:**

Lab ID:

Analyses

EPA METHOD 8270C: SEMIVOLATILES					Analyst	DAM
Benzo(k)fluoranthene	ND	10	μg/L	1	7/10/2015 1:30:30 PM	20095
Benzoic acid	ND	20	µg/L	1	7/10/2015 1:30:30 PM	20095
Benzyl alcohol	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
Bis(2-chloroethoxy)methane	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
Bis(2-chloroethyl)ether	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
Bis(2-chloroisopropyl)ether	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
Bis(2-ethylhexyl)phthalate	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
4-Bromophenyl phenyl ether	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
Butyl benzyl phthalate	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
Carbazole	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
4-Chloro-3-methylphenol	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
4-Chloroaniline	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
2-Chloronaphthalene	ND	10	μg/L	1	7/10/2015 1:30:30 PM	20095
2-Chlorophenol	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
4-Chlorophenyl phenyl ether	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
Chrysene	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
Di-n-butyl phthalate	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
Di-n-octyl phthalate	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
Dibenz(a,h)anthracene	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
Dibenzofuran	ND	10	μg/L	1	7/10/2015 1:30:30 PM	20095
1,2-Dichlorobenzene	ND	10	μg/L	1	7/10/2015 1:30:30 PM	20095
1,3-Dichlorobenzene	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
1,4-Dichlorobenzene	ND	10	μg/L	1	7/10/2015 1:30:30 PM	20095
3,3 ⁻ -Dichlorobenzidine	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
Diethyl phthalate	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
Dimethyl phthalate	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
2,4-Dichlorophenol	ND	20	µg/L	1	7/10/2015 1:30:30 PM	20095
2,4-Dimethylphenol	ND	10	μg/L	1	7/10/2015 1:30:30 PM	20095
4,6-Dinitro-2-methylphenol	ND	20	µg/L	1	7/10/2015 1:30:30 PM	20095
2,4-Dinitrophenol	ND	20	µg/L	1	7/10/2015 1:30:30 PM	20095
2,4-Dinitrotoluene	ND	10	μg/L	1	7/10/2015 1:30:30 PM	20095
2,6-Dinitrotoluene	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
Fluoranthene	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
Fluorene	ND	10	μ g /L	1	7/10/2015 1:30:30 PM	20095
Hexachlorobenzene	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
Hexachlorobutadiene	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
Hexachlorocyclopentadiene	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
Hexachloroethane	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
Indeno(1,2,3-cd)pyrene	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	Е	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 2 of 20
	ND	Not Detected at the Reporting Limit	Р	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL.	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix		

Analytical Report Lab Order 1507094

Analytical Report

Lab Order 1507094

Date Reported: 8/6/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Injection Well 7-1-15 Project: 1507094-001

Lab ID:

Client Sample ID: Injection Well Collection Date: 7/1/2015 9:00:00 AM Received Date: 7/2/2015 7:00:00 AM

Analyses	Result	RL Qua	l Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILE	s				Analyst	DAM
Isophorone	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
1-Methylnaphthalene	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
2-Methylnaphthalene	NĎ	10	µg/L	1	7/10/2015 1:30:30 PM	20095
2-Methylphenol	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
3+4-Methylphenol	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
N-Nitrosodi-n-propylamine	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
N-Nitrosodimethylamine	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
N-Nitrosodiphenylamine	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
Naphthalene	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
2-Nitroaniline	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
3-Nitroaniline	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
4-Nitroaniline	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
Nitrobenzene	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
2-Nitrophenol	NÐ	10	µg/L	1	7/10/2015 1:30:30 PM	20095
4-Nitrophenol	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
Pentachlorophenol	ND	20	µg/L	1	7/10/2015 1:30:30 PM	20095
Phenanthrene	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
Phenol	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
Pyrene	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
Pyridine	ND	10	μg/L	1	7/10/2015 1:30:30 PM	20095
1,2,4-Trichlorobenzene	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
2,4,5-Trichlorophenol	ND	10	µg/L	1	7/10/2015 1:30:30 PM	20095
2,4,6-Trichlorophenol	ND	10	μg/L	1	7/10/2015 1:30:30 PM	20095
Surr: 2-Fluorophenol	66.2	14.9-111	%REC	1	7/10/2015 1:30:30 PM	20095
Surr: Phenol-d5	64.1	11.3-108	%REC	1	7/10/2015 1:30:30 PM	20095
Surr: 2,4,6-Tribromophenol	75.7	15.7-154	%REC	1	7/10/2015 1:30:30 PM	20095
Surr: Nitrobenzene-d5	84.6	47.8-106	%REC	1	7/10/2015 1:30:30 PM	20095
Surr: 2-Fluorobiphenyl	63.7	21.3-123	%REC	1	7/10/2015 1:30:30 PM	20095
Surr: 4-Terphenyl-d14	51.4	14.3-135	%REC	1	7/10/2015 1:30:30 PM	20095
EPA METHOD 8260B: VOLATILES					Analyst	BCN
Benzene	ND	1.0	μg/L	1	7/9/2015 8:19:52 PM	R27397
Toluene	1.5	1.0	μg/L	1	7/9/2015 8:19:52 PM	R27397
Ethylbenzene	ND	1.0	μg/L	1	7/9/2015 8:19:52 PM	R27397
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	7/9/2015 8:19:52 PM	R27397
1,2,4-Trimethylbenzene	ND	1.0	μg/L	1	7/9/2015 8:19:52 PM	R27397
1,3,5-Trimethylbenzene	ND	1.0	μg/L	1	7/9/2015 8:19:52 PM	R27397
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	7/9/2015 8:19:52 PM	R27397
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	7/9/2015 8:19:52 PM	R27397
Naphthalene	ND	2.0	μg/L	1	7/9/2015 8:19:52 PM	R27397

Matrix: AQUEOUS

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers: ٠ Value exceeds Maximum Contaminant Level. D Sample Diluted Due to Matrix Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RPD outside accepted recovery limits R

S % Recovery outside of range due to dilution or matrix В Analyte detected in the associated Method Blank

Е Value above quantitation range

Analyte detected below quantitation limits Page 3 of 20 J

P Sample pH Not In Range

Reporting Detection Limit RL

Analytical Report Lab Order 1507094

Date Reported: 8/6/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Injection Well 7-1-15 **Project:** 1507094-001

Lab ID:

Client Sample ID: Injection Well Collection Date: 7/1/2015 9:00:00 AM Received Date: 7/2/2015 7:00:00 AM Matrix: AQUEOUS

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analys	BCN
1-Methylnaphthalene	ND	4.0	µg/L	1	7/9/2015 8:19:52 PM	R2739
2-Methylnaphthalene	ND	4.0	µg/L	1	7/9/2015 8:19:52 PM	R2739
Acetone	72	10	µg/L	1	7/9/2015 8:19:52 PM	R2739
Bromobenzene	ND	1.0	μg/L	1	7/9/2015 8:19:52 PM	R2739
Bromodichloromethane	ND	1.0	µg/L	1	7/9/2015 8:19:52 PM	R2739
Bromoform	ND	1.0	µg/L	1	7/9/2015 8:19:52 PM	R2739
Bromomethane	ND	3.0	μg/L	1	7/9/2015 8:19:52 PM	R2739
2-Butanone	11	10	μg/L	1	7/9/2015 8:19:52 PM	R2739
Carbon disulfide	ND	10	μg/L	1	7/9/2015 8:19:52 PM	R2739
Carbon Tetrachloride	ND	1.0	µg/L	1	7/9/2015 8:19:52 PM	R2739
Chlorobenzene	ND	1.0	μg/L	1	7/9/2015 8:19:52 PM	R2739
Chloroethane	ND	2.0	µg/L	1	7/9/2015 8:19:52 PM	R2739
Chloroform	ND	1.0	µg/L	1	7/9/2015 8:19:52 PM	R2739
Chloromethane	ND	3.0	µg/L	1	7/9/2015 8:19:52 PM	R2739
2-Chlorotoluene	ND	1.0	µg/L	1	7/9/2015 8:19:52 PM	R2739
4-Chlorotoluene	ND	1.0	μg/L	1	7/9/2015 8:19:52 PM	R2739
cis-1,2-DCE	ND	1.0	μg/L	1	7/9/2015 8:19:52 PM	R2739
cis-1,3-Dichloropropene	ND	1.0	μg/L	1	7/9/2015 8:19:52 PM	R2739
1,2-Dibromo-3-chloropropane	ND	2.0	μ g/L	1	7/9/2015 8:19:52 PM	R2739
Dibromochloromethane	ND	1.0	μ g/L	1	7/9/2015 8:19:52 PM	R2739
Dibromomethane	ND	1.0	μg/L	1	7/9/2015 8:19:52 PM	R2739
1,2-Dichlorobenzene	ND	1.0	μ g /L	1	7/9/2015 8:19:52 PM	R2739
1,3-Dichlorobenzene	ND	1.0	μg/L	1	7/9/2015 8:19:52 PM	R2739
1,4-Dichlorobenzene	ND	1.0	μg/L	1	7/9/2015 8:19:52 PM	R2739
Dichlorodifluoromethane	ND	1.0	μg/L	1	7/9/2015 8:19:52 PM	R2739
1,1-Dichloroethane	ND	1.0	μg/L	1	7/9/2015 8:19:52 PM	R2739
1,1-Dichloroethene	ND	1.0	μg/L	1	7/9/2015 8:19:52 PM	R2739
1,2-Dichloropropane	ND	1.0	µg/L	1	7/9/2015 8:19:52 PM	R2739
1,3-Dichloropropane	ND	1.0	μg/L	1	7/9/2015 8:19:52 PM	R2739
2,2-Dichloropropane	, ND	2.0	μg/∟	1	7/9/2015 8:19:52 PM	R2739
1,1-Dichloropropene	ND	1.0	µg/L	1	7/9/2015 8:19:52 PM	R2739
Hexachlorobutadiene	ND	1.0	μg/L	1	7/9/2015 8:19:52 PM	R2739
2-Hexanone	ND	10	µg/L	1	7/9/2015 8:19:52 PM	R2739
Isopropylbenzene	ND	1.0	µg/L	1	7/9/2015 8:19:52 PM	R2739
4-Isopropyltoluene	ND	1.0	µg/L	1	7/9/2015 8:19:52 PM	R2739
4-Methyl-2-pentanone	ND	10	hā/r	1	7/9/2015 8:19:52 PM	R2739
Methylene Chloride	ND	3.0	µg/L	1	7/9/2015 8:19:52 PM	R2739
n-Butylbenzene	ND	3.0	μg/L	1	7/9/2015 8:19:52 PM	R2739
n-Propylbenzene	ND	1.0	μg/L	1	7/9/2015 8:19:52 PM	R2739

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated M
	D	Sample Diluted Due to Matrix	Е	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation
	ND	Not Detected at the Reporting Limit	Р	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix		

- Method Blank
- ^{on limits} Page 4 of 20

Analytical Report Lab Order 1507094

Date Reported: 8/6/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Injection Well 7-1-15 Project: 1507094-001

Lab ID:

Client Sample ID: Injection Well Collection Date: 7/1/2015 9:00:00 AM Matrix: AQUEOUS Received Date: 7/2/2015 7:00:00 AM

Analyses	Result	RL Qu	al Units	ÐF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analys	t: BCN
sec-Butylbenzene	ND	1.0	µg/L	1	7/9/2015 8:19:52 PM	R27397
Styrene	ND	1.0	μg/L	1	7/9/2015 8:19:52 PM	R27397
tert-Butylbenzene	ND	1.0	µg/L	1	7/9/2015 8:19:52 PM	R27397
1,1,1,2-Tetrachloroethane	ND	1.0	µg/L	1	7/9/2015 8:19:52 PM	R27397
1,1,2,2-Tetrachloroethane	ND	2.0	µg/L	1	7/9/2015 8:19:52 PM	R27397
Tetrachloroethene (PCE)	ND	1.0	µg/L	1	7/9/2015 8:19:52 PM	R27397
trans-1,2-DCE	ND	1.0	μg/L	1	7/9/2015 8:19:52 PM	R27397
trans-1,3-Dichloropropene	ND	1.0	µg/L	1	7/9/2015 8:19:52 PM	R27397
1,2,3-Trichlorobenzene	ND	1.0	μg/L	1	7/9/2015 8:19:52 PM	R27397
1,2,4-Trichlorobenzene	ND	1.0	μg/L	1	7/9/2015 8:19:52 PM	R27397
1,1,1-Trichloroethane	ND	1.0	µg/L	1	7/9/2015 8:19:52 PM	R27397
1,1,2-Trichloroethane	ND	1.0	μg/L	1	7/9/2015 8:19:52 PM	R27397
Trichloroethene (TCE)	ND	1.0	µg/L	1	7/9/2015 8:19:52 PM	R27397
Trichlorofluoromethane	ND	1.0	µg/L	1	7/9/2015 8:19:52 PM	R27397
1,2,3-Trichloropropane	ND	2.0	µg/L	1	7/9/2015 8:19:52 PM	R27397
Vinyl chloride	ND	1.0	μ g /L	1	7/9/2015 8:19:52 PM	R27397
Xylenes, Total	ND	1.5	µg/L	1	7/9/2015 8:19:52 PM	R27397
Surr: 1,2-Dichloroethane-d4	96.9	70-130	%REC	1	7/9/2015 8:19:52 PM	R27397
Surr: 4-Bromofluorobenzene	90.8	70-130	%REC	1	7/9/2015 8:19:52 PM	R27397
Surr: Dibromofluoromethane	103	70-130	%REC	1	7/9/2015 8:19:52 PM	R27397
Surr: Toluene-d8	95.5	70-130	%REC	1	7/9/2015 8:19:52 PM	R27397

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	Е	Value above quantitation range
	11	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 5 of 20
	ND	Not Detected at the Reporting Limit	Р	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix		

Anatek Labs, Inc.

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	Batch #:	150707035
Address:	4901 HAWKINS NE SUITE D	Project Name:	1507094
	ALBUQUERQUE, NM 87109		
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number Client Sample ID	150707035-001 1507094-001E / INJE		oling Date	7/1/2015		Time Receiv Sling Time		11:00 AM
Matrix	Water	Samj	ole Location	i				
Comments								
Parameter		Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide (reacti	ive)	NÚ	mg/L	1	7/15/2015	CRW	SW848 CH7	
Flashpoint		>200	*F		7/15/2015	KFG	EPA 1010	
рH		7.36	ph Units		7/8/2015	KMC	SM 4500pH-B	
Reactive sulfid	e	ND	mg/L	1	7/15/2015	HSW	SW846 CH7	

Authorized Signature

John Coddington, Lab Manager

MCL EPA's Maximum Contaminant Level

ND Not Datected

POL Practical Quantitation Limit

This report shall not be reproduced except in full, without the written approval of the laboratory. The results reported relate only to the samples indicated. Soll/solid results are reported on a dry-weight basis unless otherwise noted.

Contrivations for d by Analek Labs 80./ EPA (000013; AZ 0701; CO.(000013; FL(NELAP) E37803; ID (000013; NT CERT0028; NM; ID00013; OR: ID200001-082; WA C595 Contrivations for d by Analek Labs WA; EPA(WA00169; ID.WA00169; WA; C585; MT:Con6095; FL(NELAP), E871999

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com 504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	Batch #:	150707035
Address:	4901 HAWKINS NE SUITE D	Project Name:	1507094
	ALBUQUERQUE, NM 87109		
Attn:	ANDY FREEMAN		
	Analytical Results R	leport	

Quality Control Data

Lab Control Sample										
Parameter	LCS Result	Ųnits	LCS	Spike	%Rec	AR	%Rec	Prep	Date	Analysis Date
Reactive sulfide	0.816	mg/L	0.9	07	90.0	70	-130	7/15/	2015	7/15/2015
Cyanide (reactive)	0.486	mg/L	0.	5	97.2	80	-120	7/15/	2015	7/15/2015
Matrix Spike										<u></u>
Sample Number Parameter		Sample	MS	Unit	-	MS	%Rec	AR	Prep Date	Analysis Dat
Sample Number Parameter 150707035-001A Reactive sulfide		Result ND	Result 0.816		+	Spike 0.907	90.0	%Rec 70-130	7/15/2015	-
150707035-001 Cyanide (reactive)		ND	0.462	mg/ mg/		0.907	92.4	80-120	7/15/2015	
			-						<u></u> .	
Matrix Spike Duplicate	MSD		MSD				AR			
Parameter	Result	Units	Spike	%R	lec	%RPD	%RPD	Pre	p Date	Analysis Date
Cyanide (reactive)	0.454	mg/L	0.5	90	.8	1.7	0-25	7/1	5/2015	7/15/2015
Method Blank										
Parameter		Res	sult	Uı	nits		PQL	Pr	ep Date	Analysis Date
Cyanide (reactive)		N	D	m	g/L		1	7/1	5/2015	7/15/2015
Reactive sulfide		N	D	m	g/L		1	7/1	5/2015	7/15/2015

AR Acceptable Range

ND Not Detected

PQL Practical Quantitation Limit

RPD Relative Percentage Difference

.

Comments:

Centifications held by Anatek Labs ID: EPA:ID00013; AZ 0701; CO:ID00013; FL(NELAP) E87893; ID:ID00013; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C595 Centifications held by Anatok Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

Hall Environmental Analysis Laboratory, Inc.

WO#: 1507094

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06-Aug-15

Client: Project:	Western Refining So Injection Well 7-1-15		st, Inc.							
Sample ID MB	SampTy	pe: ME	BLK	Tes	tCode: E	PA Method	300.0: Anion:	6		
Client ID: PBW	Batch	D: R2	7295	Ĥ	RunNo: 2	27295				
Prep Date:	Analysis Da	te: 7/	2/2015	S	SeqNo: 8	317819	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								
Sample ID LCS	SampTy	pe: LC	S	Tes	tCode: E	PA Method	300.0: Anion:	;		
Client ID: LCSW	Batch	D: R2	7295	R	lunNo: 2	7295				
Prep Date:	Analysis Da	te: 7/	2/2015	S	eqNo: 8	17820	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	5.0	0.50	5.000	0	99.0	90	110			
Sulfate	10	0.50	10.00	0	103	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Díluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit

Client: Western Refining Southwest, Inc.

Project: Injection Well 7-1-15

Sample ID 100ng LCS	SampT	ype: LC	s	Tes	TestCode: EPA Method 8260B: VOLATILES					
Client ID: LCSW	Batch	D: R	27397	F	RunNo: 27397					
Prep Date:	Analysis D	ate: 7	/9/2015	S	SeqNo: 8	22125	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	90.9	70	130			
Toluene	17	1.0	20.00	0	87.2	70	130			
Chlorobenzene	17	1.0	20.00	0	85.5	70	130			
1,1-Dichloroethene	19	1.0	20.00	0	95.4	70	130			
Trichloroethene (TCE)	17	1.0	20.00	0	84.0	70	130			
Surr: 1,2-Dichloroethane-d4	9.3		10.00		93.4	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		99.3	70	130			
Surr: Dibromofluoromethane	11		10.00		106	70	130			
Surr: Toluene-d8	10		10.00		100	70	130			
Sample ID rb1	SampT	ype: MI	BLK	Tes	tCode: E	PA Method	8260B: VOL/	ATILES		
Client ID: PBW	Batch	n ID: R2	27397	F	RunNo: 2	7397				
Prep Date:	Analysis D			S	eqNo: 8	22418	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit

WO#: 1507094

06-Aug-15

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Client: Western Refining Southwest, Inc.

Project: Injection Well 7-1-15

Sample ID rb1	SampT	Гуре: МЕ	ILK	TestCode: EPA Method 8260B: VOLATILES							
Client ID: PBW	Batcl	h ID: R2	7397	RunNo: 27397							
Prep Date:	Analysis Date: 7/9/2015			SeqNo: 822418			Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
4-Chlorotoluene	ND	1.0		·							
cis-1,2-DCE	ND	1.0									
cis-1,3-Dichloropropene	ND	1.0									
,2-Dibromo-3-chloropropane	ND	2.0									
Dibromochloromethane	ND	1.0									
Dibromomethane	ND	1.0									
,2-Dichlorobenzene	ND	1.0									
I,3-Dichlorobenzene	ND	1.0									
I,4-Dichlorobenzene	ND	1.0									
Dichlorodifluoromethane	ND	1.0									
,1-Dichloroethane	ND	1.0									
,1-Dichloroethene	ND	1.0									
,2-Dichloropropane	ND	1.0									
,3-Dichloropropane	ND	1.0									
,2-Dichloropropane	ND	2.0									
,1-Dichloropropene	ND	1.0									
lexachlorobutadiene	ND	1.0									
-Hexanone	ND	10									
sopropylbenzene	ND	1.0									
l-isopropyltoluene	ND	1.0									
-Methyi-2-pentanone	ND	10									
/ethylene Chloride	ND	3.0									
-Butylbenzene	ND	3.0									
-Propylbenzene	ND	1.0									
ec-Butylbenzene	ND	1.0									
Styrene	ND	1.0									
ert-Butylbenzene	ND	1.0									
,1,1,2-Tetrachloroethane	ND	1.0									
1,2,2-Tetrachloroethane	ND	2.0									
etrachloroethene (PCE)	ND	1.0									
ans-1,2-DCE	ND	1.0									
ans-1,3-Dichloropropene	ND	1.0									
,2,3-Trichlorobenzene	ND	1.0									
,2,4-Trichlorobenzene	ND	1.0									
,1,1-Trichloroethane	ND	1.0									
1,2-Trichloroethane	ND	1.0									
richloroethene (TCE)	ND	1.0									
richlorofluoromethane	ND	1.0									
,2,3-Trichloropropane	ND	2.0									

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit

WO#: 1507094

06-Aug-15

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Client: Western Refining Southwest, Inc.

Project: Injection Well 7-1-15

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Sample ID rb1	SampT	ype: ME	3LK	Tes	tCode: El	PA Method	8260B: VOL	ATILES		
Client ID: PBW	Batch	1D: R2	7397	F	lunNo: 2	7397				
Prep Date:	Analysis D	ate: 7/	9/2015	S	BegNo: 8	22418	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	NĎ	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	9.9		10.00		98.7	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit

WO#: 1507094

06-Aug-15

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Client: Western Refining Southwest, Inc.

Project: Injection Well 7-1-15

Sample ID mb-20095	SampT	ype: MBLK	Tes	stCode: EPA Method	8270C: Semi	volatiles			
Client ID: PBW	Batcl	n ID: 20095	f	RunNo: 27414					
Prep Date: 7/6/2015	Analysis D	Date: 7/10/2015	5	SeqNo: 822558	Units: µg/L				
Analyte	Result	PQL SPK va	lue SPK Ref Val	%REC LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Acenaphthene	ND	10							
Acenaphthylene	ND	10							
Aniline	ND	10							
Anthracene	ND	10							
zobenzene	ND	10							
Benz(a)anthracene	ND	10							
Benzo(a)pyrene	ND	10							
Benzo(b)fluoranthene	ND	10							
Benzo(g,h,i)perylene	ND	10							
Benzo(k)fluoranthene	ND	10							
Benzoic acid	ND	20							
Benzyl alcohol	ND	10							
Bis(2-chloroethoxy)methane	ND	10							
Bis(2-chloroethyl)ether	ND	10							
Bis(2-chloroisopropyl)ether	ND	10							
Bis(2-ethylhexyl)phthalate	ND	10							
I-Bromophenyl phenyl ether	ND	10							
Butyl benzyl ohthalate	ND	10							
Carbazole	ND	10							
I-Chloro-3-methylphenol	ND	10							
I-Chloroaniline	ND	10							
2-Chloronaphthalene	ND	10							
2-Chlorophenol	ND	10							
-Chlorophenyl phenyl ether	ND	10							
Chrysene	ND	10							
Di-n-butyl phthalate	ND	10							
Di-n-octyl phthalate	ND	10							
Dibenz(a,h)anthracene	ND	10							
Dibenzofuran	ND	10							
,2-Dichlorobenzene	ND	10							
,3-Dichlorobenzene	ND	10							
,4-Dichlorobenzene	ND	10							
,3'-Dichlorobenzidine	NĎ	10							
ethyl phthalate	ND	10							
Dimethyl phthalate	ND	10							
,4-Dichlorophenol	ND	20							
,4-Dimethylphenol	ND	10							
,6-Dinitro-2-methylphenol	ND	20							
t,4-Dinitrophenol	ND	20							

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit

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1507094 *06-Aug-15*

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WO#:

Client: Western Refining Southwest, Inc.

Project: Injection Well 7-1-15

Sample ID mb-20095	SampT	ype: MB	ILK	Test	Code: El	PA Method	8270C: Semi	volatiles		
Client ID: PBW	Batcl	n ID: 200)95	R	lunNo: 2	7414				
Prep Date: 7/6/2015	Analysis D)ate: 7/	10/2015	S	eqNo: 8	22558	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
,4-Dinitrotoluene	ND	10								
,6-Dinitrotoluene	ND	10								
luoranthene	ND	10								
luorene	ND	10								
lexachlorobenzene	ND	10								
lexachlorobutadiene	ND	10								
lexachlorocyclopentadiene	ND	10								
lexachloroethane	NÐ	10								
ndeno(1,2,3-cd)pyrene	ND	10								
sophorone	ND	10								
-Methylnaphthalene	ND	10								
-Methylnaphthalene	ND	10								
-Methylphenol	ND	10								
+4-Methylphenol	ND	10								
-Nitrosodi-n-propylamine	ND	10								
Nitrosodimethylamine	ND	10								
I-Nitrosodiphenylamine	ND	10								
laphthalene	ND	10								
-Nitroaniline	ND	10								
-Nitroaniline	ND	10								
-Nitroaniline	ND	10								
itrobenzene	ND	10								
-Nitrophenol	ND	10								
-Nitrophenol	ND	10								
entachlorophenol	ND	20								
henanthrene	ND	10								
henol	ND	10								
yrene	ND	10								
yridine	ND	10								
2,4-Trichlorobenzene	ND	10								
4,5-Trichlorophenol	ND	10								
4,6-Trichlorophenol	ND	10								
Surr: 2-Fluorophenol	140		200.0		69.6	14.9	111			
Surr: Phenol-d5	150		200.0		74.2	11.3	108			
Surr: 2,4,6-Tribromophenol	150		200.0		75.2	15.7	154			
Surr: Nitrobenzene-d5	75		100.0		75.0	47.8	106			
Surr: 2-Fluorobiphenyl	76		100.0		75.9	21.3	123			
Surr: 4-Terphenyl-d14	52		100.0		52.2	14.3	135			

Qualifiers:

D

- * Value exceeds Maximum Contaminant Level.
 - Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit

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- WO#: 1507094
 - 06-Aug-15

Hall Environmental Analysis Laboratory, Inc.

Client: Western Refining Southwest, Inc.

Project: Injection Well 7-1-15

Sample ID Ics-20095	SampT	ype: LC	S	Tes	tCode: E	PA Method	8270C: Semi-	volatiles		
Client ID: LCSW	Batcl	n ID: 20	095	F	tunNo: 2	7414				
Prep Date: 7/6/2015	Analysis E	Date: 7/	10/2015	S	eqNo: 8	22559	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	51	10	100.0	0	51.2	47.8	99.7			
4-Chloro-3-methylphenol	110	10	200.0	0	56.2	58.1	103			S
2-Chlorophenol	73	10	200.0	0	36.7	49.5	96.8			S
1,4-Dichlorobenzene	34	10	100.0	0	33.8	40.4	89.4			S
2,4-Dinitrotoluene	42	10	100.0	0	41.8	38.6	91.3			
N-Nitrosodi-n-propylamine	51	10	100.0	0	51.1	53.9	95.6			S
4-Nitrophenol	93	10	200.0	0	46.3	26.4	108			
Pentachlorophenol	98	20	200.0	0	49.1	36.5	86.6			
Phenol	85	10	200.0	0	42.7	29.3	108			
Pyrene	56	10	100.0	0	56.2	45.7	100			
1,2,4-Trichlorobenzene	43	10	100.0	0	42.9	39.3	94.5			
Surr: 2-Fluorophenol	67		200.0		33.4	14.9	111			
Surr: Phenol-d5	86		200.0		43.0	11.3	108			
Surr: 2,4,6-Tribromophenol	120		200.0		62.3	15.7	154			
Surr: Nitrobenzene-d5	47		100.0		46.6	47.8	106			S
Surr: 2-Fluorobiphenyl	53		100.0		53.0	21.3	123			
Surr: 4-Terphenyl-d14	44		100.0		44.1	14.3	135		•	
Sample ID Icsd-20095	SampT	ype: LC	SD	Test	Code: E	PA Method	8270C: Semiv	/olatiles		
Client ID: LCSS02	Batc	n ID: 20(095	R	unNo: 2	7414				
Prep Date: 7/6/2015	Analysis D	ate: 7/	10/2015	S	eqNo: 8	22560	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
\cenaphthene	76	10	100.0	0	76.1	47.8	99.7	39.1	28.2	R
4-Chloro-3-methyiphenol	160	10	200.0	0	81.3	58.1	103	36.4	24.4	R
2-Chlorophenol	150	10	200.0	0	76.8	49.5	96.8	70.6	28.1	R
I,4-Dichlorobenzene	72	10	100.0	0	72.5	40.4	89.4	72.9	31.2	Ŕ
2,4-Dinitrotoluene	55	10	100.0	0	54.6	38.6	91.3	26.4	44.4	
V-Nitrosodi-n-propylamine	76	10	100.0	0	76.4	53.9	95.6	39.6	24.2	R
1-Nitrophenol	130	10	200.0	0	63.8	26.4	108	31.8	36.6	
	130	20	200.0	0	65.8	36.5	86.6	29.1	29.5	
Pentachlorophenol				_	77.8	29.3	108	58.2	30	R
	160	10	200.0	0	11.0					
Phenol			200.0 100.0	0	69.3	45.7	100	20.8	31	
Phenol Pyrene	160	10				45.7 39.3	100 94.5	20.8 66.6	31 24	R
Phenol Pyrene	160 69	10 10	100.0	0	69.3					R
Phenol Pyrene I,2,4-Trichlorobenzene	160 69 86	10 10	100.0 100.0	0	69.3 85.7	39.3	94.5	66.6	24	R
1	1 6 0 69 86 14 0	10 10	100.0 100.0 200.0	0	69.3 85.7 70.6	39.3 14.9	94.5 111	66.6 0	24 0	R
Phenol Pyrene I,2,4-Trichlorobenzene Surr: 2-Fluorophenol Surr: Phenol-d5	160 69 86 140 160	10 10	100.0 100.0 200.0 200.0	0	69.3 85.7 70.6 79.2	39.3 14.9 11.3	94.5 111 108	66.6 0 0	24 0 0	R

Qualifiers:

D

Н

- Value exceeds Maximum Contaminant Level. *
- Analyte detected in the associated Method Blank Е Value above quantitation range

Sample pH Not In Range

В

Р

- J Analyte detected below quantitation limits
- Page 12 of 20

Not Detected at the Reporting Limit ND

Sample Diluted Due to Matrix

- R RPD outside accepted recovery limits
- % Recovery outside of range due to dilution or matrix S

Holding times for preparation or analysis exceeded

RL Reporting Detection Limit WO#: 1507094

06-Aug-15

WO#: 1507094

06-Aug-15

	n Refining S on Well 7-1-		est, Inc.							
Sample ID Icsd-20095	SampT	ype: LC	CSD	Tes	tCode: E	PA Method	8270C: Semi	ivolatiles		
Client ID: LCSS02	Batch	1D: 20	0095	F	RunNo: 2	27414				
Prep Date: 7/6/2015	Analysis E	ate: 7	/10/2015	5	SeqNo: 8	322560	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	51	; QL	100.0		51.2	14.3	135	0	0	Quui
Sample ID mb-20218	SampT	ype: M	BLK	Tes	tCode: E	PA Method	8270C: Semi	ivolatiles		
Client ID: PBW	Batch	ı ID: 20	218	F	RunNo: 2	27531				
Prep Date: 7/13/2015	Analysis D	ate: 7	/15/2015	5	SeqNo: 8	326536	Units: %RE	с		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorophenol	90		200.0		45.0	14.9	111	• • • •		
Surr: Phenol-d5	75		200.0		37.3	11.3	108			
Surr: 2,4,6-Tribromophenol	140		200.0		69.6	15.7	154			
Surr: Nitrobenzene-d5	64		100.0		64.4	47.8	106			
Surr: 2-Fluorobiphenyl	61		100.0		61.2	21.3	123			
Surr: 4-Terphenyl-d14	45		100.0		45.2	14.3	135			
Sample ID Ics-20218	SampT	ype: LC	cs	Tes	tCode: E	PA Method	8270C: Semi	ivolatiles		
Client ID: LCSW	Batch	n ID: 20	218	F	anNo: 2	27531				
Prep Date: 7/13/2015	Analysis D	ate: 7	/15/2015	S	SeqNo: 8	26537	Units: %RE	с		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorophenol	110		200.0		53.4	14.9	111			
Surr: Phenol-d5	82		200.0		41.0	11.3	108			
Surr: 2,4,6-Tribromophenol	150		200.0		74.7	15.7	154			
Surr: Nitrobenzene-d5	74		100.0		74.2	47.8	106			
Surr: 2-Fluorobiphenyl	74		100.0		73.5	21.3	123			
Surr: 4-Terphenyl-d14	44		100.0		44.2	14.3	135			
Sample ID Icsd-20218	SampT	ype: LC	CSD	Tes	tCode: E	PA Method	8270C: Semi	volatiles		
Client ID: LCSS02	Batch	n ID: 20	218	F	RunNo: 2	7531				
Prep Date: 7/13/2015	Analysis D	ate: 7	/15/2015	S	SeqNo: 8	26538	Units: %RE	с		
		POI	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Analyte	Result					14.0	111		0	
Analyte	Result 100		200.0		52.2	14.9		0	0	
					52.2 41.8	14.9	108	0	0	
Surr: 2-Fluorophenol	100		200.0							
Surr: 2-Fluorophenol Surr: Phenol-d5	100 84		200.0 200.0		41.8	11.3	108	0	0	
Surr: 2-Fluorophenol Surr: Phenol-d5 Surr: 2,4,6-Tribromophenol	100 84 150		200.0 200.0 200.0		41.8 75.7	11.3 15.7	108 154	0 0	0 0	

Qualifiers:

D

Н

- Value exceeds Maximum Contaminant Level. *
- Analyte detected in the associated Method Blank Е Value above quantitation range

В

р

- J Analyte detected below quantitation limits
- Page 13 of 20

- Not Detected at the Reporting Limit NÐ
- R RPD outside accepted recovery limits

,

Sample Diluted Due to Matrix

S % Recovery outside of range due to dilution or matrix

Holding times for preparation or analysis exceeded

Sample pH Not In Range RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

Client:	Western Refining Southwest, Inc.
Project:	Injection Well 7-1-15

Sample ID	1507094-001b dup	S a mpTyp	e: Dl	JP	Tes	tCode:	SM2510B: SI	pecific Cond	uctance		
Client ID: I	njection Well	Batch IC): R2	27329	F	lunNo:	27329				
Prep Date:		Analysis Date	e: 7/	/6/2015	S	SeqNo:	819171	Units: µmh	os/cm		
Analyte		Result F	PQL	SPK value	SPK Ref Val	%RE0	C LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity		2000 0	.010						0.0491	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit

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WO#: 1507094

%RPD	RPDLimit	Qual
		·
,		
%RPD	RPDLimit	Qual
,		
%RPD	RPDLimit	Qual
. <u></u>		
,	%RPD %RPD	%RPD RPDLimit %RPD RPDLimit %RPD RPDLimit

Hall Environmental Analysis Laboratory, Inc.

%REC HighLimit RPDLimit Result PQL SPK value SPK Ref Val LowLimit Analyte 0.0058 0.0010 0.005000 0 116 75 125 1.62 20 Mercury

SeqNo: 820638

Units: mg/L

%RPD

Analysis Date: 7/8/2015

Qualifiers:

Prep Date: 7/8/2015

- Value exceeds Maximum Contaminant Level. *
- Sample Diluted Due to Matrix D
- Holding times for preparation or analysis exceeded Н
- Not Detected at the Reporting Limit ND
- R RPD outside accepted recovery limits
- % Recovery outside of range due to dilution or matrix S
- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Detection Limit

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06-Aug-15

WO#: 1507094

Qual

C Uall E-	Winonmor	tol Anal	voie I	aboret	onv Inc					WO#:	150709
<u>.</u>	ivironmer										06-Aug-1
Client: Project:		rn Refining S on Well 7-1-		t, Inc.							
Sample ID	MB-20102	Samp	Туре: МВ	LK	Tes	tCode: EF	PA 6010B:	Total Recove	rable Meta	ais	· · · · · · ·
Client ID:	PBW	Batc	h ID: 201	02	F	RunNo: 2	7378				
Prep Date:	7/6/2015	Analysis (Date: 7/9	0/2015	5	SeqNo: 82	21352	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		ND	0.020								
Barium		ND	0.020								
alcium		ND	1.0								
ead		ND	0.0050								
Aagnesium		ND	1.0								
Potassium		ND	1.0								
Sodium		ND	1.0								
Sample ID	LCS-20102	Samp	Type: LCS	5	Tes	tCode: EF	PA 6010B:	Total Recover	rable Meta	als	
Client ID:	LCSW	Batc	h ID: 201	02	F	RunNo: 27	7378				
Prep Date:	7/6/2015	Analysis [Date: 7/9	/2015	S	SeqNo: 82	21353	Units: mg/L			
Analyte		Result		SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
rsenic		0.52	0.020	0.5000	0	103	80	120			
arium		0.49	0.020	0.5000	0	98.5	80	120			
alcium		51	1.0	50.00	0	102	80	120			
ead		0.50	0.0050	0.5000	0	100	80	120			
Aagnesium		50	1.0	50.00	0	101	80	120			
Potassium		48	1.0	50.00	0	96.8	80	120			
Sodium		49	1.0	50.00	0	98.9	80	120	<u> </u>		
Sample ID	MB-20102	Samp	Туре: МВ	LK	Tes	tCode: EF	PA 6010B: "	Total Recover	able Meta	als	
Client ID:	PBW	Batc	h ID: 201	02	F	RunNo: 27	7491				
Prep Date:	7/6/2015	Analysis (Date: 7/1	4/2015	5	SeqNo: 82	24974	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
hromium		ND	0.0060								
Sample ID	LCS-20102	Samp	Type: LCS	5	Tes	tCode: EF	PA 6010B:	Total Recover	rable Meta	als	
Client ID:	LCSW	Batc	h ID: 201	02	F	RunNo: 27	7491				
Prep Date:	7/6/2015	Analysis [Date: 7/1	4/2015	S	SeqNo: 82	24975	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
hromium		0.49	0.0060	0.5000	0	98.5	80	120			
Sample ID	MB-20102	Samp	Туре: МВ	LK	Tes	tCode: EF	PA 6010B:	Total Recover	able Meta	als	
Client ID:	PBW	Batc	h ID: 201	02	F	RunNo: 27	7540				
Prep Date:	7/6/2015	Analysis [Date: 7/1	6/2015	5	SeqNo: 82	26932	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
								<u> </u>			

Qualifiers:

D

Н

- * Value exceeds Maximum Contaminant Level.
- Е
- Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit ND

Sample Diluted Due to Matrix

- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- Value above quantitation range
- J Analyte detected below quantitation limits
- Page 16 of 20

р Sample pH Not In Range RL Reporting Detection Limit WO#: 1507094

WO#: 1507094

06-Aug-15

	Western Refining S njection Well 7-1-		st, Inc.							
Sample ID MB-2010	2 Samp	Type: ME	BLK	Tes	tCode: El	PA 6010B:	Total Recover	able Meta	als	
Client ID: PBW	Bato	h ID: 20	102	F	RunNo: 2	7540				
Prep Date: 7/6/201	5 Analysis (Date: 7/	16/2015	5	SeqNo: 8	26932	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	ND	0.0020								
Selenium	ND	0.050								
Silver	ND	0.0050	-							
Silver	······································	0.0050 Type: LC	s	Tes	tCode: El	PA 6010B:	Total Recover	able Meta	als	
	02 Samp ⁻	· · ····			tCode: El RunNo: 2		Total Recover	able Meta	ais	
Sample ID LCS-201	02 Samp Batc	Type: LC h ID: 20		F		7540	Total Recover	able Meta	als	
Sample ID LCS-201 Client ID: LCSW	02 Samp Batc	Type: LC h ID: 20	102 16/2015	F	RunNo: 2	7540		able Meta %RPD	als RPDLimit	Qual
Sample ID LCS-201 Client ID: LCSW Prep Date: 7/6/201	02 Samp Batc 5 Analysis I	Type: LC h ID: 20 Date: 7/	102 16/2015	F S	RunNo: 2 SeqNo: 8	7540 26933	Units: mg/L			Qual
Sample ID LCS-201 Client ID: LCSW Prep Date: 7/6/201 Analyte	02 Samp Bato 5 Analysis I Result	Type: L C h ID: 20 Date: 7 / PQL	102 16/2015 SPK value	F S SPK Ref Val	RunNo: 2 SeqNo: 8 %REC	7540 26933 LowLimit	Units: mg/L HighLimit			Qual

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit

Page 17 of 20

7.46

1.68

Client: Project:	Western R Injection	-		est, Inc.							
Sample ID	1507094-001b dup	SampT	ype: D	JP	Tes	tCode: SI	M4500-H+E	3: pH			
Client ID:	Injection Well	Batch	n ID: R	27329	F	lunNo: 2	7329				
Prep Date:		Analysis D	ate: 7	/6/2015	S	eqNo: 8	19204	Units: pH u	nits		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

pН

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S=-% Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit

WO#: 1507094

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06-Aug-15

						00-Aug-1
Client: Project:	Western Refining Southwest, I Injection Well 7-1-15	nc.				
Sample ID mb-1	SampType: MBLK	Test	tCode: SM2320B: AI	kalinity		
Client ID: PBW	Batch ID: R2732	9 R	lunNo: 27329			
Prep Date:	Analysis Date: 7/6/20	0 15 S	SeqNo: 819128	Units: mg/L CaCO3		
Analyte Total Alkalinity (as CaC		PK value SPK Ref Val	%REC LowLimit	HighLimit %RPD	RPDLimit	Qual
Sample ID Ics-1	SampType: LCS	Tesl	Code: SM2320B: AI	kalinity		
Client ID: LCSV	Batch ID: R2732	9 R	tunNo: 27329			
Prep Date:	Analysis Date: 7/6/20	0 15 S	eqNo: 819129	Units: mg/L CaCO3		
Analyte	Result PQL SF	K value SPK Ref Val	%REC LowLimit	HighLimit %RPD	RPDLimit	Qual
Total Alkalinity (as CaC	03) 78.36 20.00	80.00 0	98.0 90	110		
Sample ID mb-2	SampType: MBLK	Test	Code: SM2320B: Al	kalinity		
Client ID: PBW	Batch ID: R2732	9 R	unNo: 27329			
Prep Date:	Analysis Date: 7/6/20) 15 S	eqNo: 819152	Units: mg/L CaCO3		
Analyte	Result PQL SF	K value SPK Ref Val	%REC LowLimit	HighLimit %RPD	RPDLimit	Qual
Total Alkalinity (as CaC	03) ND 20.00	- 1				
Sample ID Ics-2	SampType: LCS	Test	:Code: SM2320B: Al	kalinity		
Client ID: LCSW	Batch ID: R2732	9 R	unNo: 27329			
Prep Date:	Analysis Date: 7/6/20	9 15 S	eqNo: 819153	Units: mg/L CaCO3		
Analyte	Result PQL SP	PK value SPK Ref Val	%REC LowLimit	HighLimit %RPD	RPDLimit	Qual
Analyte	Result PQL SP	K value SPK Ref Val	%REC LowLimit	HighLimit %RPD	RPDLimit	Qual

0

99.3

90

110

Hall Environmental Analysis Laboratory, Inc.

79.44

20.00

80.00

WO#: 1507094

06-Aug-15

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix

Total Alkalinity (as CaCO3)

- 11 Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S=-% Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit

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WO#: 1507094

06-Aug-15

Client: Project:		rn Refining So on Well 7-1-1		st, Inc.							
Sample ID MB	-20129	SampT	ype: ME	BLK	Tes	tCode:	SM2540C M	DD: Total Diss	olved So	lids	
Client ID: PB	N	Batch	ID: 20	129	F	RunNo:	27360				
Prep Date: 7/	7/2015	Analysis D	ate: 7/	8/2015	S	SeqNo:	820297	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	C LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solid	ds	ND	20.0								
Sample ID LC	S-20129	SampT	ype: LC	s	Tes	tCode: :	SM2540C M	DD: Total Diss	olved So	lids	
Client ID: LCS	sw	Batch	ID: 20	129	F	tunNo:	27360				
Prep Date: 7/	7/2015	Analysis D	ate: 7/	8/2015	5	eqNo:	820298	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solid	đs	1010	20.0	1000	0	101	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit

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HALL ENVIRONMENTAL ANALYSIS LABORATORY

4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

المراجع المرجع الرا

Sample Log-In Check List

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Client Name:	Western Refining Southw	Work Order Number:	1507094		ReptNo: 1	
Received by/da	te: AT-07/	102115	· · · · · · · · · · · · · · · · · · ·			
Logged By:	Anne Thome	7/2/2015 7:00:00 AM		are Him		
Completed By:	Anne Thome	7/2/2015		anne Hann		
Reviewed By:	<u> </u>	OTIOZIS				
Chain of Cus	stody	1-11-				
1. Custody sea	als intact on sample bottles?		Yes 🗍	No 🗆	Not Present 🗹	
2. Is Chain of	Custody complete?		Yes 🗹	No 🗖	Not Present	
3. How was the	e sample delivered?		<u>Courier</u>			
<u>Loq In</u>						
4. Was an atte	empt made to cool the sample	s?	Yes 🗹	No 🗆	NA 🗌	
5. Were all sa	mples received at a temperatu	re of >0* C to 6.0°C	Yes 🗹	No 🗌	NA	
6. Sample(s) i	in proper container(s)?		Yes 🗹	No 🗍		
7. Sufficient sa	mple volume for indicated tes	t(s)?	Yes 🔽	No 🗆		
8, Are sample:	s (except VOA and ONG) prop	erly preserved?	Yes 🗹	No 🗆		
9. Was preser	vative added to bottles?		Yes 🗌	No 🗹	NA 🗋	
10.VOA vials h	ave zero headspace?		Yes 🗌	No 🗔	No VOA Vials 🗹	
11. Were any s	ample containers received bro	ken?	Yes 🗖	No 🗹	# of preserved	
	Work match bottle labels? Pancies on chain of custody)		Yes 🗹	No 🗌	bottles checked for pH:	Z 13 unless noted)
13. Are matrices	s correctly identified on Chain	of Custody?	Yes 🗹	No 🗆	Adjusted?	
.14, Is it clear wi	hat analyses were requested?		Yes 🗹	No 🗖		~
	Iding times able to be met?		Yes 🗹	No 🗌	Checked by:	1/1
(If no, notify	Customer for authorization.)					

Special Handling (If applicable)

s client notified of all o	liscrepancies with this orde	er?	Yes 🗌	No 🗌	NA
Person Notified:		Date			
By Whom:		Vla:	🗌 eMail 📋	Phone 🗌 Fax	🗌 In Person
Regarding:	and the second sec	Calculate a state of state			
Client Instructions:					

17. Additional remarks:

18. Cooler Information

Ī	Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date Signed By
	1	1.0	Good	Yes		

С	hain-	of-Cu	stody Record	Turn-Around	Time:				9		ы	A I 1	LE	NV	ЛС	0	NR	лғ	NT	'A I	
Client:	Nesl	ErN	Refining	Standard	🗆 Rush			 [3.1				LYS								
			· ·	Project Name									allen								-
Mailing	Address	# 50	CR 4990	Injectio	onvell	7-1-	-15		490)1 Ha			- Alt					109			
Bl	Bom	Ciel	12, NM87413	Project #:								-397	•				4107				
Phone #	1:52	5-6	52-4/35	P.O.#	126109:	39					-		Anal								
email or				Project Mana					(Ylu	ĝ		a	\neg	Ĵ,					sivity	ਜ	Т
QA/QC F	Package:							(8021)	TPH (Gas only)	(GRO / DRO / MRO)	5	EDB (Method 504:4)84.4 40		Ω,	CB's				, Ni Siv	Y.	
K Stan	dard		Level 4 (Full Validation)			<u> </u>		ഗ	۳	8			5	d bo	2 P(ę.	AK	
Accredit				Sampler:	306	· · · · · · · · · · · · · · · · · · ·		TMB'	Ξ	21	` ₹ :			Ng I	808				er.	T T	Íź
			ſ		Ances .	D-Nô		+	+ 1	2 2 2	4			ģ	/ Se		(d)	ם		<u>o</u>	Μź
	(Type)_	•		Samplestem	perature	20		MTBE	Ë	00		8 \$	deta /	Ъ,	icid	(YC	-i-	bili	3	م _	7 2 2 2
				Container	Preservative			+	+ MTBE	8015B	FPH (Method 410.1) [DS	EDB (Nethod 504:1)894(、 DAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,CI,NO ₃ ,NO ₂ ,	8081 Pesticides / 8082 PCB	8260B (VOA)	8270 (Semi-VOA)	Iguita	ĨĘ,	ZK	1
Date	Time	Matrix	Sample Request ID	Type and #	Туре			втех	BTEX	TPH 8	Ŧ		<u> </u>	ions	81 F	60B	20(2	3,	311	3 2
						NS M	NG CONTRACTOR	6	6	Ë	<u>₽</u>		<u> </u>	۲	80		82	H	al 1	31	// [4
<u>7-1-15</u>	9:æ	ff20	injection well	5-10A	Hel		-201									X					
		. 1	· ·	1-liter	amber		-04				•						X				
				1-500ml			201											X			Т
				1-500 m			700			-	X									$\overline{\mathbf{x}}$	十
				1-125ml	HoSOY		-20				<u> </u>	X	-	1					Ť	┓	Ť
					HNO3	· .	-00						X							-+-	+
					NaOtt		7001							1				+	\mathbf{x}^{\dagger}		十
				1	ZN ACETA	tz	-001													7	X
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														1	1						十
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Date:	Time:	Relinquish	ed by:	Received by:	·)	Date	Time	Ren	narks	3:	L			1	4		<u> </u>	<u> </u>	<u> </u>		
7-1-15	12.15	1200	er Knokow	Anti	Undele	~ 7/1/1·	x 1215														
Date:	Time:	Relinquish	ed by:	Received by:	T A	Date	Time													!	
7/1/1×	1810	V Chn	Inter Walter		su I	07/0	2/15	b									•				
	. /	<u> </u>						r	141.7	• •	· ·		• •••	•					• •		

Water Analysis of Entrada Formation Water

(from TnT Disposal well located in section 8/T25N/R3W)

.

Multi-Chem Analytical Laboratory

1122 S. FM1788 Midland, TX 76706

Units of Measurement: Standard

A HALLIBURTON SERVICE

Water Analysis Report

Production Company: Well Name: Sample Point:	TNT Environmental SWD ENTRADA SWD	S: La
Sample Date: Sample ID:	11/20/2014 WA-294316	Γ

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Sales Rep: **Greg Ramaiho** .ab Tech: **Andrew Callaghan**

(

Scaling potential predicted using ScaleSoftPitzer from Brine Chemistry Consortium (Rice University)

(PTB = Pounds per Thousand Barrels)

Sample Speci	fics		Analysis @ Prop	perties in Sample Specifics	
Test Date:	11/25/2014	Cations	mg/L	Anions	mg/L
System Temperature 1 (°F):	. 31	Sodium (Na):	4455.35	Chloride (Cl):	6000.00
System Pressure 1 (psig):	i	Potassium (K):	44.79	Sulfate (SO4):	1094.00
System Temperature 2 (°F):	300	Magnesium (Mg):	23.10	Bicarbonate (HCO3):	427.00
System Pressure 2 (psig):	300	Calcium (Ca):	115.67	Carbonate (CO3):	120.00
Calculated Density (g/ml):	1.0059	Strontium (Sr):	7.60	Acetic Acid (CH3COO)	
pH:	7.60	Barium (Ba):	9.30	Propionic Acid (C2H5COO)	
Calculated TDS (mg/L):	12320.63	Iron (Fe):	1.82	Butanoic Acid (C3H7COO)	
CO2 in Gas (%):		Zinc (Zn):	0.10	Isobutyric Acid ((CH3)2CHCOO)	
Dissolved CO2 (mg/L)):	80.00	Lead (Pb):	0.00	Fluoride (F):	
H2S in Gas (%):	C. & S. & A. M. & .	Ammonia NH3:		Bromine (Br):	
H2S in Water (mg/L):	2.50	Manganese (Mn):	0.55	Silica (SiO2):	21.35

Notes:

			lcium bonate	Bariur	n Sulfate		ron Ifide		ron Gypsum Donate CaSO4-2H2O		Celestite SrSO4		Halite NaCl		Zinc Sulfide		
Temp (°F)	PSI	SI	PTB	SI	РТВ	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
300.00	300.00	1.90	85.63	1.92	5.47	2.21	0.99	1.95	1.31	0.00	0.00	0.09	1.02	0.00	0.00	6.95	0.05
270.00	268.00	1.68	77.73	1.90	5.47	2.04	0.99	1.80	1.30	0.00	0.00	0.00	0.00	0.00	, 0.00	7.04	0.05
_240.00	236.00	1.47	68.31	1.90	5.47	1.89	· 0.98	1.63	1.29	0.00	0.00	0.00	0.00	0.00	0.00	7.17	0.05
210.00	205.00	1.26	57.99	1.92	5.47	1.76	0.97	1.45	1.27	0.00	0.00	0.00	0.00	0.00	0.00	7.32	0.05
180.00	173.00	1.06	47.51	1.98	5.48	1.67	0.96	1.25	1.24	0.00	0.00	0.00	0.00	0.00	0.00	7.53	0.05
150.00	141.00	0.88	37.61	2.08	5.49	1.62	0.96	1.03	1.19	0.00	0.00	0.00	0.00	0.00	0.00	7.79	0.05
120.00	110.00	0.71	29.02	2.23	5.51	1.64	0.96	0.81	1.11	0.00	0.00	0.00	0.00	0.00	0.00	8.13	0.05
90.00	78.00	0.57	22.00	2.44	5.52	1.73	0.97	0.59	0.96	0.00	0.00	0.00	0.00	0.00	0.00	8.56	0.05
60.00	46.00	0.46	16.76	2.73	5.53	1.92	0.98	0.36	0.73	0.00	0.00	0.00	0.00	0.00	0.00	9.11	0.05
31.00	15.00	0.39	13.73	3.10	5.53	2.26	0.99	0.16	0.39	0.00	0.00	0.00	0.00	0.00	0.00	9.83	0.05

			ihydrate 4 [∼] 0.5H2 O		ydrate sSO4		lcium Ioride		Zinc bonate ₍		<i>ead</i> ulfide		Mg icate		a Mg licate		Fe icate
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	Si .	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
300.00	300.00	0.00	0.00	0.14	31.79	0.00	0.00	0.91	0.06	0.00	0.00	7,71	25.75	4.14	13.11	9.66	1.42
270.00	268.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75	0.06	0.00	0.00	6.34	25.03	3.32	12.39	8.62	1.41
240.00	236.00	0.00	0.00	0.00	0.00	0.00	0.00	0.54	0.05	0.00	0.00	4.87	22.02	2.45	10.55	7.49	1.41
210.00	205.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.03	0.00	0.00	3.30	15.59	1,51	7.07	6.31	1.40
180.00	173.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.67	7.51	0.54	2.57	5.08	1.38
150.00	141.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.84	1.32
120.00	110.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.66	1.18
90.00	78.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.55	0.90
60.00	46.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.61	0.45
31.00	15.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01

Multi-Chem - A Halliburton Service

Ethics

Innovation

Ad No. 72205

STATE OF NEW MEXICO County of San Juan:

SAMMY LOPEZ, being duly sworn says: That he IS the PUBLISHER of THE DAILY TIMES, a daily newspaper of general circulation published in English at Farmington, said county and state, and that the hereto attached Legal Notice was published in a regular and entire issue of the said DAILY TIMES, a daily newspaper duly qualified for the purpose within the meaning of Chapter 167 of the 1937 Session Laws of the State of New Mexico for publication and appeared in the Internet at The Daily Times web site on the following day(s):

Monday, December 14, 2015

And the cost of the publication is \$60.13

ON 12/15/15 SAMMY LOPEZ appeared before me, whom I know personally to be the person who signed the above document.

Christine Sellers



COPY OF PUBLICATION

Western Refining
Southwest, Inc., rep-
resented by John
Thompson (505) 327-
Western Refining Southwest, Inc., rep- resented by John Thompson (505) 327- 4892, has applied to the New Mayico Oil
the New Mexico Oil
Conservation Division
for administrative ap-
' for authinistrative ap-
proval to be author-
ized to inject non-
hazardous treated wa-
ter generated from the Bloomfield Termi-
the Bloomfield Termi-
into the proposed
Class I (non- hazardous) disposal well. The proposed SWD #2, will be locate
hazardous) disposal
well The proposed
SWD #2 will be locate
ad 2019' FNI & 110'
EEL Soction 27 T29N
ed 2019' FNL & 110' FEL, Section 27, T29N, R11W, San Juan Coun-
ty New Mexico
ty, New Mexico.
The proposed injec-
tion zone is the
Entrada formation.
The estimated injection depths are 7315's to 7,483' and the
tion depths are 7315
to 7,483' and the
maximum anticipated .!
injection rate is 8000
injection rate is 8000 BPD. The maximum 'J
injection pressure will
be determined from a 7
stop rate test inter-
step rate test. Inter- ested parties can
make comments' to
this application to the
NM Oil Conservation
NM OIL CONSERVATION
Division, 1220 St.
Francis Dr., Santa Fe,
NM 87505. Com+
ments must be re-
NM 87505. Com-
of the date of this f
nublication and the
Legal No. 72205 pub- lished in The Daily Times on Dec 14, 2015
lished in The Daily !
Times on Dec 14, 2015
Times on Dec 14, 2010

December 10, 2015

VIA CERTIFIED MAIL

Attn: Crystal Walker (Regulatory Coordinator) Burlington Resources Oil & Gas Company LP 3401 E. 30th Street Farmington, NM 87402

ł

Re: Application of Western Refining Southwest, Inc. for Authorization to Inject in the proposed SWD #2, San Juan, New Mexico.

Dear Ms. Walker,

Western Refining Southwest, Inc. has applied to the New Mexico Oil Conservation Division to dispose of non-hazardous treated water generated from the Bloomfield Terminal (former Refinery) into the Entrada formation in the proposed SWD #2. The SWD #2 will be located 2019' feet from the North line and 110' feet from the East in Section 27, Township 29 North, Range 11 West, San Juan County, New Mexico. As an offset operator (the Calvin #1 is within a half mile of the proposed SWD #2) you are being notified of this application pursuant to NMOCD rules

If you have no objection to this Application then no further action is required on your part. If you would like to file an objection or to request a hearing please notify the NMOCD at 1220 South St. Francis, St., Santa Fe, NM 87505 within 20 days of receipt of this notice.

If you have any questions or need additional information please feel free to call me at (505) 327-4892.

Sincerely,

John Thompson Walsh Engineering & Production Agent/Engineer for Western Refining Southwest

VIA CERTIFIED MAIL

Attn: Diane Montano (Regulatory Compliance Mgr.) XTO Energy, Inc. 382 Road 3100 Aztec, NM 87410

Re: Application of Western Refining Southwest, Inc. for Authorization to Inject in the proposed SWD #2, San Juan, New Mexico.

Dear Ms. Montano,

Western Refining Southwest, Inc. has applied to the New Mexico Oil Conservation Division to dispose of non-hazardous treated water generated from the Bloomfield Terminal (former Refinery) into the Entrada formation in the proposed SWD #2. The SWD #2 will be located 2019' feet from the North line and 110' feet from the East in Section 27, Township 29 North, Range 11 West, San Juan County, New Mexico. As an offset operator of the Sullivan Gas Com D #1E, Davis Gas Com F #1E, Davis Gas Com F #1R, all of which are within a half mile of the proposed SWD #2, you are being notified of this application pursuant to NMOCD rules

If you have no objection to this Application then no further action is required on your part. If you would like to file an objection or to request a hearing please notify the NMOCD at 1220 South St. Francis, St., Santa Fe, NM 87505 within 20 days of receipt of this notice.

If you have any questions or need additional information please feel free to call me at (505) 327-4892.

Sincerely,

John Thompson Walsh Engineering & Production Agent/Engineer for Western Refining Southwest

December 10, 2015

VIA CERTIFIED MAIL

Attn: Regulatory Coordinator Holcomb Oil & Gas Inc. 512 W. Arrington Farmington, NM 87402

Re: Application of Western Refining Southwest, Inc. for Authorization to Inject in the proposed SWD #2, San Juan, New Mexico.

Dear Mr. Holcomb,

Western Refining Southwest, Inc. has applied' to the New Mexico Oil Conservation Division to dispose of non-hazardous treated water generated from the Bloomfield Terminal (former Refinery) into the Entrada formation in the proposed SWD #2. The SWD #2 will be located 2019' feet from the North line and 110' feet from the East in Section 27, Township 29 North, Range 11 West, San Juan County, New Mexico. As an offset operator of the Davis Com J#1, Jacque #1, Jacque #2, all of which are within a half mile of the proposed SWD #2, you are being notified of this application pursuant to NMOCD rules

If you have no objection to this Application then no further action is required on your part. If you would like to file an objection or to request a hearing please notify the NMOCD at 1220 South St. Francis, St., Santa Fe, NM 87505 within 20 days of receipt of this notice.

If you have any questions or need additional information please feel free to call me at (505) 327-4892.

Sincerely.

John Thompson Walsh Engineering & Production Agent/Engineer for Western Refining Southwest

 SENDER: COMPLETENTIES SECTION Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired. Print your name and address on the reverse so that we can return the card to you. Attach this card to the back of the mailpiece, or on the front if space permits. Attach ddressed to: Burlington Pesources Oil* Great Addressed to: Attach Walkov autous applied applied	A. Signature Agent A. Signature Agent A. Signature Addressee B. Received by (Printed Nome) C. Date of Delivery J. J. Solution J. J				
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382 Ed 3100 Aztec, NM 87410	3. Service Type Gertified Mail Express Mail Registered Gertified Mail CO.D. Restricted Delivery? (Extra Fee) Yes
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1. Article Addressed to: Hobomb Oil & Gros elne, Atta: Regulatory Coordinator 512 W. Arriggton Farmington WM 82402	D. Is delivery address different from ite If YES, enter delivery address bein If YES, enter delivery address bein If U 17 	No No
	4. Restricted Delivery? (Extra Fee)	□ Yes

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