District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised April 3, 2017

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

[X] Initial Report [ ] Final Report

Name of Company	RAM Energy LLC	Contact	Connie Swan
Address	5100 E Skelly Drive, Suite 600	Telephone No.	(918) 621-6533
Facility Name	West Dollarhide Queen Sand Unit #92	Facility Type	Well site

Surface Owner	George Willis	Mineral Owner	Danglade Speight Family	API No.	30-025-30131

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
I	31	24S	38E	1360	North	970	East	Lea

Latitude 32.1703148 **Longitude** -103.0941925 NAD83

NATURE OF RELEASE

Type of Release	Oil and saltwater	Volume of Release 3 bo, 12 bw	Volume Recovered none
Source of Release	Flowline	Date and Hour of Occurrence	Date and Hour of Discovery 1/31/18 11:30am
Was Immediate Notice Given? [X] Yes [ ] No [ ] Not Required		If YES, To Whom? Olivia Yu, Hobbs District Office	
By Whom?	Connie Swan	Date and Hour	1/31/18 3:30pm
Was a Watercourse Reached? [ ] Yes [X] No		If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

RECEIVED
By Olivia Yu at 7:25 am, Feb 12, 2018

Describe Cause of Problem and Remedial Action Taken.*

Leak from WDQSU #99 flowline that runs close to WDQSU #92 well. Pumper shut in well and stopped leak.

Describe Area Affected and Cleanup Action Taken.*

Area approximately 50' x 300'. Contaminated soil will be excavated and removed.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: CSwan	OIL CONSERVATION DIVISION
Printed Name: Connie Swan	Approved by Environmental Specialist:
Title: Regulatory Administrator	Approval Date: 2/12/2018 Expiration Date:
E-mail Address: csswan@swanderlandok.com	Conditions of Approval: see attached directive Attached [ ]
Date: 2/7/18 Phone: (918) 621-6533	

* Attach Additional Sheets If Necessary

1RP-4961 nOY1804327005 pOY1804327381

Operator/Responsible Party,

The OCD has received the form C-141 you provided on _2/7/2018_ regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number _1RP-4961__ has been assigned. **Please refer to this case number in all future correspondence.**

It is the Division's obligation under both the Oil & Gas Act and Water Quality Act to provide for the protection of public health and the environment. Our regulations (19.15.29.11 NMAC) state the following,

> *The responsible person shall complete division-approved corrective action for releases that endanger public health or the environment. The responsible person shall address releases in accordance with a remediation plan submitted to and approved by the division or with an abatement plan submitted in accordance with 19.15.30 NMAC.* [emphasis added]

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District _1_ office in __Hobbs____ on or before _3/12/2018_. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

The goals of a characterization effort are: 1) determination of the lateral and vertical extents along with the magnitude of soil contamination. 2) determine if groundwater or surface waters have been impacted. 3) If groundwater or surface waters have been impacted, what are the extents and magnitude of that impact. 4) The characterization of any other adverse impacts that may have occurred (examples: impacts on vegetation, impacts on wildlife, air quality, loss of use of property, etc.). To meet these goals as quickly as possible, the following items must, at a minimum, be addressed in the release characterization workplan and subsequent reporting:

● Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C_6 thru C_{36}), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.

● Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C_6 thru C_{36}), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.

● Nominal detection limits for field and laboratory analyses must be provided.

● Composite sampling is not generally allowed.

● Field screening and assessment techniques are acceptable (headspace, titration, EC [include algorithm for validation purposes], EM, etc.), but the sampling and assay procedures must be clearly defined. Copies of field notes are highly desirable. A statistically significant set of split samples must be submitted for confirmatory laboratory analysis, including the laterally farthest and vertically deepest sets of soil samples. Make sure there are at least two soil samples submitted

for laboratory analysis from each borehole or test pit (highest observed contamination and deepest depth investigated). Copies of the actual laboratory results must be provided including chain of custody documentation.

●Probable depth to shallowest protectable groundwater and lateral distance to nearest surface water. If there is an estimate of groundwater depth, the information used to arrive at that estimate must be provided. If there is a reasonable assumption that the depth to protectable water is 50 feet or less, the responsible party should anticipate the need for at least one groundwater monitoring well to be installed in the area of likely maximum contamination.

● If groundwater contamination is encountered, an additional investigation workplan may be required to determine the extents of that contamination. Groundwater and/or surface water samples, if any, must be analyzed by a competent laboratory for volatile organic hydrocarbons (typically Method 8260 full list), total dissolved solids, pH, major anions and cations including chloride and sulfate, dissolved iron, and dissolved manganese. The investigation workplan must provide the groundwater sampling method(s) and sample handling protocols. To the fullest extent possible, aqueous analyses must be undertaken using nominal method detection limits. As with the soil analyses, copies of the actual laboratory results must be provided including chain of custody documentation.

● Accurately scaled and well-drafted site maps must be provided providing the location of borings, test pits, monitoring wells, potentially impacted areas, and significant surface features including roads and site infrastructure that might limit either the release characterization or remedial efforts. Field sketches may be included in subsequent reporting, but should not be considered stand-alone documentation of the site's layout. Digital photographic documentation of the location and fieldwork is recommended, especially if unusual circumstances are encountered.

Nothing herein should be interpreted to preclude emergency response actions or to imply immediate remediation by removal cannot proceed as warranted. Nonetheless, characterization of impacts and confirmation of the effectiveness of remedial efforts must still be provided to the OCD before any release incident will be closed.

Jim Griswold
OCD Environmental Bureau Chief
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
505-476-3465
jim.griswold@state.nm.us

District I
1625 N. French Dr., Hobbs, NM 88240
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State of New Mexico
Energy Minerals and Natural Resources Department

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

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	nOY1804327005
District RP	1RP-4961
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party	RAM Energy LLC	OGRID	309777
Contact Name	Matt Patterson	Contact Telephone	(918) 638-7054
Contact email	mpatterson@ramenergy	Incident # *(assigned by OCD)*	nOY1804327005
Contact mailing address	5100 E Skelly Drive, Suite 600, Tulsa, OK 74135		

Location of Release Source

Latitude 32.1703148 Longitude -103.0941925
(NAD 83 in decimal degrees to 5 decimal places)

Site Name	West Dollarhide Queen Sand Unit #92	Site Type	well site
Date Release Discovered	1/31/2018 11:30 am	API# *(if applicable)*	30-025-30131

Unit Letter	Section	Township	Range	County
I	31	24S	38E	Lea

Surface Owner: ☐ State ☐ Federal ☐ Tribal ☒ Private (*Name:* George Willis)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

☒ Crude Oil	Volume Released (bbls) 3	Volume Recovered (bbls) -0-
☒ Produced Water	Volume Released (bbls) 12	Volume Recovered (bbls) -0-
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

Leak from WDQSU #99 flowline that runs close to WDQSU #92 well.
Pumper shut in well and stopped leak.

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Page 2

State of New Mexico
Oil Conservation Division

Incident ID	nOY1804327005
District RP	1RP-4961
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☐ Yes ☒ No	If YES, for what reason(s) does the responsible party consider this a major release?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

☒ The source of the release has been stopped.

☒ The impacted area has been secured to protect human health and the environment.

☒ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.

☒ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not been undertaken, explain why:

Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Connie Swan Title: Regulatory Administrator

Signature: CSwan Date: 12/6/2021

email: csswan@swanderlandok.com Telephone: (918) 621-6533

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	nOY1804327005
District RP	1RP-4961
Facility ID	
Application ID	

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release?	>100 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ☒ No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: ***Each of the following items must be included in the report.***

- ☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☒ Field data
- ☒ Data table of soil contaminant concentration data
- ☒ Depth to water determination
- ☒ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
- ☒ Boring or excavation logs
- ☒ Photographs including date and GIS information
- ☒ Topographic/Aerial maps
- ☒ Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

Form C-141
Page 4

State of New Mexico
Oil Conservation Division

Incident ID	nOY1804327005
District RP	1RP-4961
Facility ID	
Application ID	

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Connie Swan Title: Regulatory Compliance Administrator

Signature: CSwan Date: 12/6/2021

email: csswan@swanderlandok.com Telephone: 918-621-6533

OCD Only

Received by: _____ Date: _____

Form C-141
Page 5

State of New Mexico
Oil Conservation Division

Incident ID	nOY1804327005
District RP	1RP-4961
Facility ID	
Application ID	

Remediation Plan

Remediation Plan Checklist: ***Each of the following items must be included in the plan.***

- [x] Detailed description of proposed remediation technique
- [x] Scaled sitemap with GPS coordinates showing delineation points
- [x] Estimated volume of material to be remediated
- [x] Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- [x] Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

Deferral Requests Only: ***Each of the following items must be confirmed as part of any request for deferral of remediation.***

- [ ] Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.
- [ ] Extents of contamination must be fully delineated.
- [ ] Contamination does not cause an imminent risk to human health, the environment, or groundwater.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Connie Swan Title: Regulatory Compliance Administrator

Signature: CSwan Date: 12/6/2021

email: csswan@swanderlandok.com Telephone: 918-621-6533

OCD Only

Received by: _____ Date: _____

- [ ] Approved
- [x] Approved with Attached Conditions of Approval
- [ ] Denied
- [ ] Deferral Approved

Signature: Bradford Billings Date: 12/08/2021

State of New Mexico
Oil Conservation Division

Incident ID	nOY1804327005
District RP	1RP-4961
Facility ID	
Application ID	

Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: ***Each of the following items must be included in the closure report.***

☐ A scaled site and sampling diagram as described in 19.15.29.11 NMAC

☐ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

☐ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

☐ Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: _____ Title: _____

Signature: _____ Date: _____

email: _____ Telephone: _____

OCD Only

Received by: _____ Date: _____

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: _____ Date: _____

Printed Name: _____ Title: _____

March 12, 2018

Ms. Olivia Yu
Environmental Specialist
New Mexico Oil Conservation Division
Hobbs District 1 Office
1625 French Drive
Hobbs, New Mexico 88240

SUBMITTED VIA EMAIL
Olivia.Yu@state.nm.us

Re: Release Characterization Work Plan
West Dollarhide Queen Sand Unit #99 Flowline Release
NMOCD Case No. 1RP-4961
Lea County, New Mexico

Dear Ms. Yu:

Enviro Clean Cardinal, LLC (ECC) has been retained by RAM Energy Resources (RAM) to prepare a Release Characterization Work Plan for RAM's West Dollarhide Queen Sand Unit (WDQSU) #99 flowline (Site) located in Unit Letter I, Section 31, Township 24 South, Range 38 East of Lea County, New Mexico (geographical coordinates 32.1703148N, 103.0941925W). The objective of this work plan is to delineate the impacts to the Site. The Site is approximately one and seven tenths (1.7) miles west of the New Mexico/Texas state line and seven (7) miles northeast of Jal, New Mexico. The Site location and topographical features are shown on the attached **Figure 1**. The following photographs represent site conditions as observed on February 28, 2018.

This NMOCD report has been prepared to comply with 19.15.29.11 NMAC as well as the *Guidelines for Remediation of Leaks, Spills and Releases* (August 13, 1993) delineation requirements. The attached **Figure 2** *Release Location Map* identifies the visibly impacted media covered by this *Release Characterization Workplan*.

Property Ownership

The Site surface is owned by Mr. George Willis with the mineral rights being owned by the Danglade Speight Family.

Site Characteristics

The Release Site is in the Dollarhide Oil Field, and is situated at approximately 3,120 feet above mean seal level, with a slight slope to the south to southwest towards Monument Draw. Monument Draw is the only Waters of the United States identified watercourse in the vicinity of the Site and is located approximately 2,000 feet southeast of the Site. The primary land use is for ranching and livestock, with significant oilfield development in the region. The area is semiarid, with a net annual average precipitation/evaporation loss of approximately 80 inches.

The United States Department of Agriculture, Natural Resources Conservation Service, Soil Survey for Lea County, New Mexico indicates that the soils surrounding the release Site and release-affected area is classified as "SE" (Simona fine sandy loam, 0 to 3 percent slopes) and is a Typic Paleorthid. This indicates a loamy, mixed thermic shallow soil that is well drained, and is derived of calcareous eolian deposits from sedimentary rocks.

The United States Geological Survey indicates that the surface or near-surface geologic unit is Quaternary-aged sand deposits "Qsu" that are described as windblown deposits, sand sheets and dunes, undivided. Underlying these recent deposits are the Neogene-age Ogallala Formation which is comprised of alluvial and eolian deposits and petrocalcic soils of the southern High Plains. Site observations indicate the surface soil is shallow to thick wind-deposited sands overlaying limestone.

Site Hydrogeology

As stated above, the Site is located on Quaternary-aged sand deposits that overlay the Neogene-aged Ogallala Formation. Locally the uppermost groundwater saturations occur within these formations. An online search of the New Mexico Water Rights Reporting System, as provided by the New Mexico Office of State Engineer (NMOSE) (http://nmwrrs.ose.state.nm.us/nmwrrs/watercolumn.html), produced a *Water Column Report* showing four (4) water well records that fell within a 2,000-meter search radius of the Site. These wells had a minimum depth to groundwater of 77 feet, a maximum depth to groundwater of 105 feet, and an average depth to groundwater of 92 feet below ground level (BGL). The *ChevronTexaco Lea County Depth to Ground Water* trend maps (Wayne Johnson, March 9, 2005) indicate that the depth to groundwater at the Site is greater than 100 feet BGL for groundwater. See **Attachment A** for NMOSE Water Column Reports.

Description of Release and Initial Response Actions

The release was discovered by the pumper on January 31, 2018. Initial response action consisted of shutting in the well and replacing the flowline. The release occurred in the field adjacent and to the north of the RAM WDQSU #92 well and covered an area of approximately three hundred (300) feet by fifty (50) feet. The release was verbally reported to Ms. Olivia Yu of the NMOCD on January 31, 2018. RAM's *Release Notification and Corrective Action Form*, C-141, was submitted to the NMOCD on February 7, 2018, and states twelve (12) barrels (bbls) of produced water and three (3) bbls of crude oil were released with zero (0) bbls recovered. A copy of this C-141 and the NMOCD's response is provided in **Attachment B**.

Applicable Regulatory Levels

The NMOCD has established *Recommended Remediation Action Levels* (RRAL) for soils impacted with petroleum hydrocarbons through a site ranking process provided in their document on titled *Guidelines for Remediation of Leaks, Spills and Releases,* dated August 1993. The ranking criteria is based on numeric scores to determine the appropriate soil remediation action

level for relative threats to public health, fresh water, and the environment. The following three site characteristics are evaluated as part of this ranking process:

- **Depth to groundwater** (Vertical distance from ground surface to seasonal high water level)
  - If less than 50 feet BGL = 20 points
  - If 50 to 99 feet BGL = 10 points←
  - If greater than 100 feet = 0 points

- **Wellhead Protection Areas** (All water sources including private and domestic sources. Sources are defined as wells, springs or other sources of fresh water extraction)
  - If less than 1,000 feet from a water source, or less than 200 feet from a private domestic water source = 20 points
  - If greater than 1,000 feet from a water source, or greater than 200 feet from a private domestic water source = 0 points←

- **Distance to Nearest Surface Water Body**
  - If less than 200 horizontal feet = 20 points
  - If 200 to 1,000 horizontal feet = 10 points
  - If greater than 1,000 horizontal feet = 0 points ←

The NMOSE Water Column Report and ChevronTexaco Lea County Depth to Ground Water trend map collectively indicate that the depth to groundwater near the Site should range between 77 and over 100 feet BGL, respectively. So, based on the shallowest depth to water (77 feet) element of the NMOCD site assessment criteria, the Site would be assigned 10 points. The NMOSE's water well records show that no water sources exist within 1,000 feet from the Site. So, for the wellhead protection areas element of the NMOCD site assessment criteria the Site would be assigned 0 points. The nearest surface water body is greater than 1,000 feet. So, for the surface water body element of the NMOCD site assessment criteria the Site would be assigned 0 points. Therefore, the Site would have a total score of **10 points**.

Based upon the NMOCD's RRAL ranking criteria, the most protective hydrocarbon cleanup levels are assigned to sites with a total ranking score greater than 19. With the site ranking score of 10 points, the soil RRALs for this Site are as follows:

- Benzene = 10 ppm,
- Total benzene, toluene, ethylbenzene and toluene (collectively BTEX) = 50 ppm, and
- Total petroleum hydrocarbons (TPH) = 1,000 ppm.

In addition to these hydrocarbon clean-up values for soil, the NMOCD has developed an assessment level of 600 mg/Kg for chloride impacts to soil at a facility 950 feet northeast of this Site Release (RAM WDQSU Satellite 3 NMOCD Case No. 1RP-4599) which is similar in scope of work, lithology, and groundwater depth. RAM Energy respectfully requests that the 600 mg/Kg chlorides for assessment levels be applied to this location.

Non-Intrusive Electromagnetic Conductivity Survey

On February 28, 2018, ECC performed an electromagnetic (EM) terrain conductivity survey of the Site in order to better delineate the release for response planning. The EM survey was performed utilizing a EM38-MK2 meter manufactured by Geonics Limited. The EM terrain conductivity survey uses the principle of induction to measure the ground conductivity of the subsurface. This instrument uses a rectified alternating electric current of a known frequency and magnitude, which is passed through a transmitter coil creating a primary magnetic field in the space surrounding

the coil, including the underground. Eddy currents are generated in the ground that induce a secondary current within underground conductors, which result in an alternating secondary magnetic field that is sensed by the receiving coil. The ratio of the magnitudes of the primary and secondary currents is proportional to the terrain conductivity. Apparent electrical conductivity readings will increase with increases in clay content, soluble salt, water, and temperature.

The EM38 meter is equipped with two transmitter coils and two receiver coils each with a fixed separation of 0.5-meters (m) and 1.0-m. The depth of signal penetration and response profile are governed by the coil separation and their orientation of the coil dipole (horizontal or vertical dipole). The amplitude of the secondary field is converted into values of ground conductivity. The ground conductivity is measured in millimhos per meter (mmhos/m) or milliSiemens per meter (mS/m). The surveys at this Site were performed with the EM38 meter in the vertical dipole (VD) orientation and the measured ground conductivities are measured in depths of 2.5 feet (0.5-m coil) and 5 feet (1.0-m coil), collecting geo-referenced data at a rate of two readings per second. A separate in-phase mode is also used to distinguish metal objects that could interfere with true ground conductivity measurements. During the survey the EM38 provides a constant output of the following four channels of information:

- Ground conductivity from 0 to 2.5 feet in depth (0.5-m VD)
- In-phase response for metal detection (0.5-m, VD)
- Ground conductivity from 0 to 5 feet in depth (1.0-m VD)
- In-phase response for metal detection (1.0-m VD)

The data from these four channels of information are reduced to spreadsheet tables, which are then imported into drafting programs for mapping.

Using walking traverses that were generally perpendicular to the flowpath of the released fluids, ECC collected 2,767 data-point locations across the Site. See **Attachement C** for EM38 Survey Data Results. The pathways are shown as light gray lines on the *Survey Results* maps attached to this report. See **Figures 3 and 4** for EM38 0.5-m and 1.0-m, respectively.

From ECC's review of the conductivity results, it appears the background levels for the WDQSU #99 flowline release range from 17 to 49 mmhos/m. The maximum 0.5-m and 1.0-m conductivity measurements at the Site were 343.24 and 331.60 mmhos/m, respectively.

The EM results have been contoured using a 50 mmhos/m interval. Soils having background conductivity levels up to 50 mmhos/m are shown in the light green shading. Within the light green areas very little to none of the soils are expected to be impacted above 600 mg/Kg chlorides. However, areas highlighted in dark green, blue, red and magenta are progressively more impacted with brine and will require field soil sampling delineation and laboratory verification. The following potentially impacted areas have been calculated for both the 0.5-m and 1.0-m EM responses:

- EM38 0.5-m response >50 mmhos/m = 11,460.26 square feet or 0.26 acres
- EM38 1.0-m response >50 mmhos/m = 18,729.25 square feet or 0.43 acres

Proposed Soil Boring Installations and Sample Collection

In order to verify the vertical and horizontal extent of the impacts of TPH, BTEX and chlorides at the Site ECC proposes to install four (4) soil borings in the areas of highest conductivity readings (> 100 mmhos/m) and two (2) soil borings in the areas highlighted in dark green or < 100 mmhos/m. See **Figure 5** *Proposed Soil Boring Location Map* for details. The soil borings will be installed utilizing a stainless steel hand auger and samples collected on one (1) foot intervals from the surface to five (5) feet below ground surface (bgs), then every two feet to a depth of ten (10) feet bgs, and if possible every five (5) feet bgs thereafter, until chlorides are consistently below 600 mg/Kg or refusal is encountered. Samples will be collected from the auger, bagged, and placed in four (4) ounce glass containers provided by the laboratory. The auger will be decontaminated between each sample with Alconox© and deionized water. The soil borings will be logged using the Unified Soil Classification System (USCS) and field screened with a photo ionization detector (PID) for BTEX and TPH, and with a field conductivity meter for chlorides. Upon completion of the augering, select soil samples will be collected and submitted to Xenco Laboratories of Midland, Texas under chain-of-custody for analysis of BTEX by EPA method 8021B, TPH by EPA Method SW8015M for GRO/DRO, and Chlorides by EPA method E300.0. Upon completion of the drilling, each of the soil borings will be grouted from the extent of the boring to the surface with bentonite chips and hydrated to prevent further vertical penetration into the underlying sub strait by the release source.

Once the soil analytical results have been received from the laboratory, ECC will evaluate the data, develop and submit a remediation work plan to the NMOCD.

ECC hopes the NMOCD will find this Release Characterization Work Plan responsive to their C-141 response, and will approve its implementation. If you have questions regarding this document, please do not hesitate to contact Mr. Darrell Pennington at RAM at 918-947-6304, or myself at 432-301-0209.

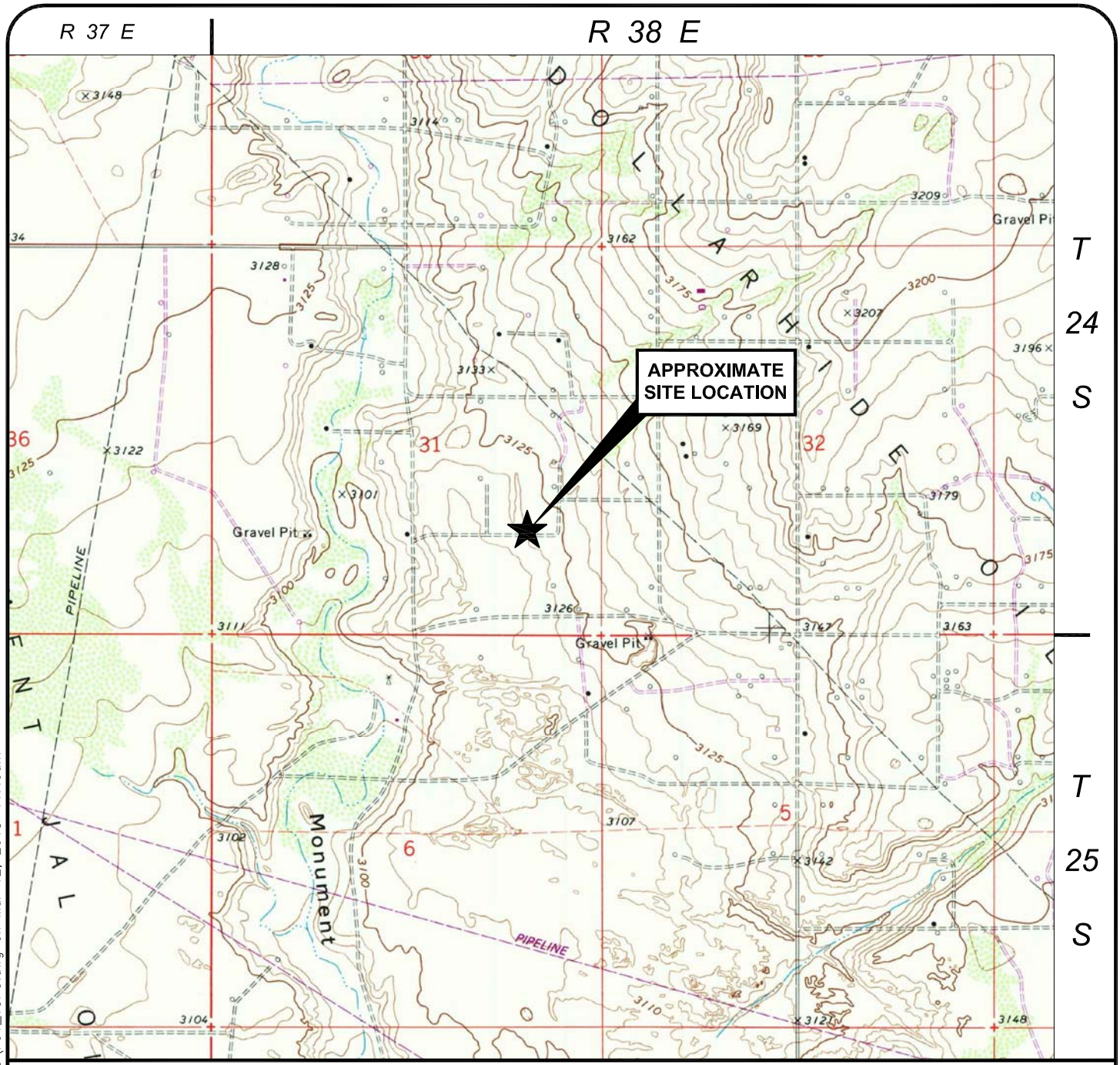
Sincerely,
Enviro Clean Cardinal, LLC

Jeffrey Kindley, P.G.
Senior Hydro Geologist

Attachments: Figure 1 – Site Location and Topographic Features
Figure 2 – Release Location Map
Figure 3 – EM38 0.50-Meter Vertical Dipole Survey Results
Figure 4 – EM38 1.0-Meter Vertical Dipole Survey Results
Figure 5 – Proposed Soil Boring Map
Attachment A – NMOSE Water Column Reports
Attachment B – NMOCD C-141
Attachment C – EM38 Survey Data Results

ATTACHMENTS

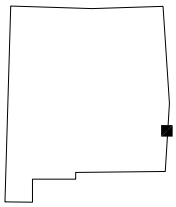
FIGURES



SOURCE: U.S.G.S. 7.5 MINUTE TOPOGRAPHIC QUADRANGLE
JAL NE, TEXAS-NEW MEXICO 1969, PHOTOREVISED 1979

SCALE
0 1/2 1 MILE

NEW MEXICO



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CLIENT RAM ENERGY RESOURCES TULSA, OKLAHOMA	FIGURE TITLE ***SITE LOCATION AND TOPOGRAPHIC FEATURES***
LOCATION WEST DOLLARHIDE QUEEN SAND UNIT #99 FLOWLINE RELEASE SEC. 31, T24S R38E, LEA COUNTY, NEW MEXICO	DOCUMENT TITLE RELEASE CHARACTERIZATION WORK PLAN

ENVIRO CLEAN CARDINAL

Enviro Clean Cardinal, LLC
2405 East County Road 123
Midland, Texas 79706
432.301.0209
www.ECGRP.com

		DESIGNED BY	GHR\JK
DATE	3/12/2018	APPROVED BY	GHR\JK
SCALE	AS SHOWN	DRAWN BY	SKG
PROJECT NUMBER		FIGURE NUMBER	
RAMRNM0001		1	

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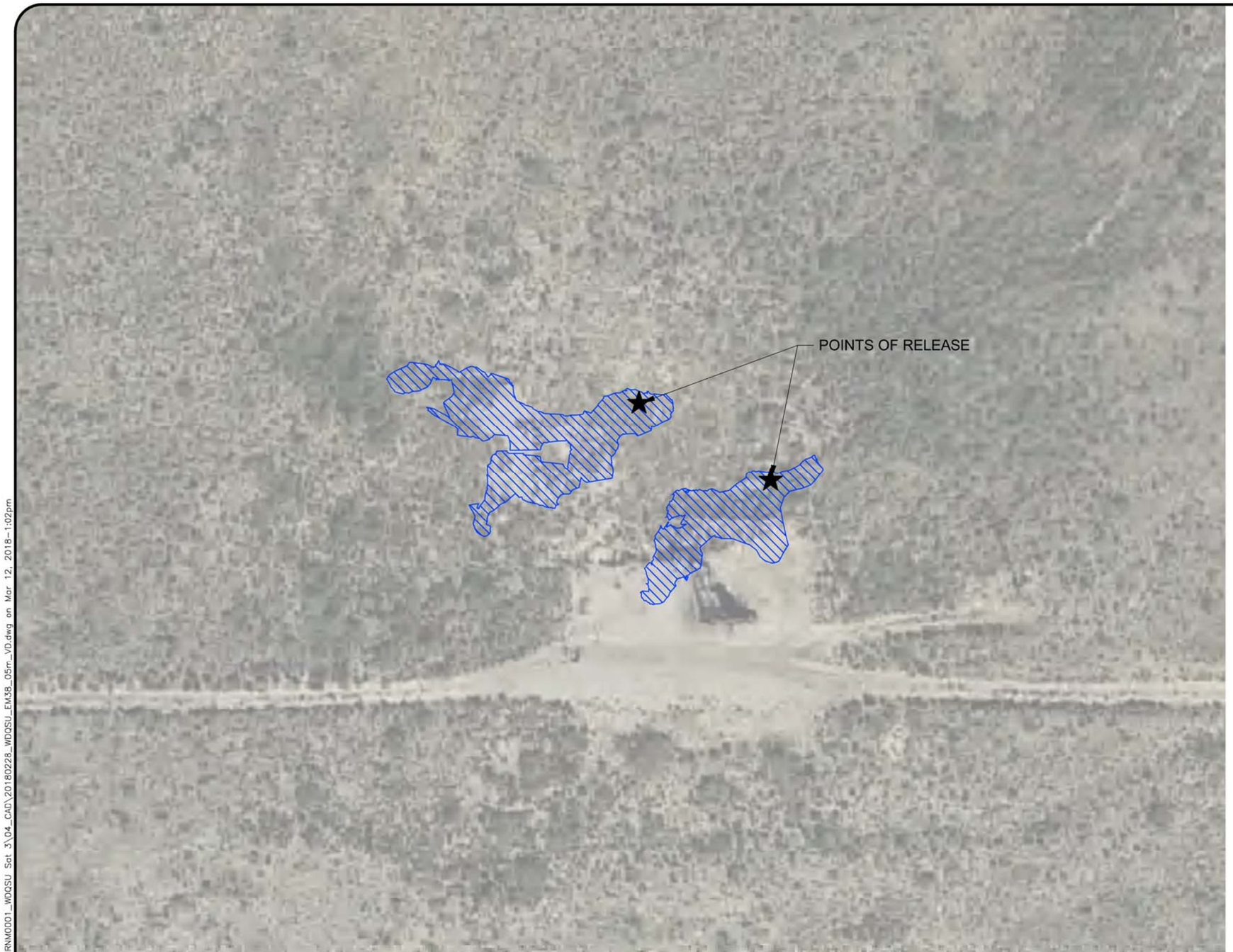

LEGEND

★ LOCATION OF RELEASE POINTS

AREAS OF SUSPECTED IMPACT

N

25 0 25 50

SCALE FEET

SOURCE: AERIAL PHOTOGRAPH DATED NOVEMBER 22, 2016, GEOREFERENCED FROM GOOGLE EARTH IMAGE SERVICES

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ENVIRO CLEAN CARDINAL

Enviro Clean Cardinal, LLC

2405 East County Road 123
Midland, Texas 79706
432.301.0209

www.EnviroCleanPS.com

DOCUMENT TITLE
RELEASE CHARACTERIZATION
WORK PLAN

FIGURE TITLE
RELEASE LOCATION MAP

CLIENT
RAM ENERGY RESOURCES
TULSA, OKLAHOMA

LOCATION
WEST DOLLARHIDE QUEEN SAND UNIT #99 FLOWLINE RELEASE
SECTION 31, T24S, R38E, LEA COUNTY, NEW MEXICO

DESIGNED BY	GHR\JK		
APPROVED BY	GHR\JK	SCALE	1"= 50'
DRAWN BY	SKG	DATE	3/12/2018

PROJECT NUMBER	FIGURE NUMBER
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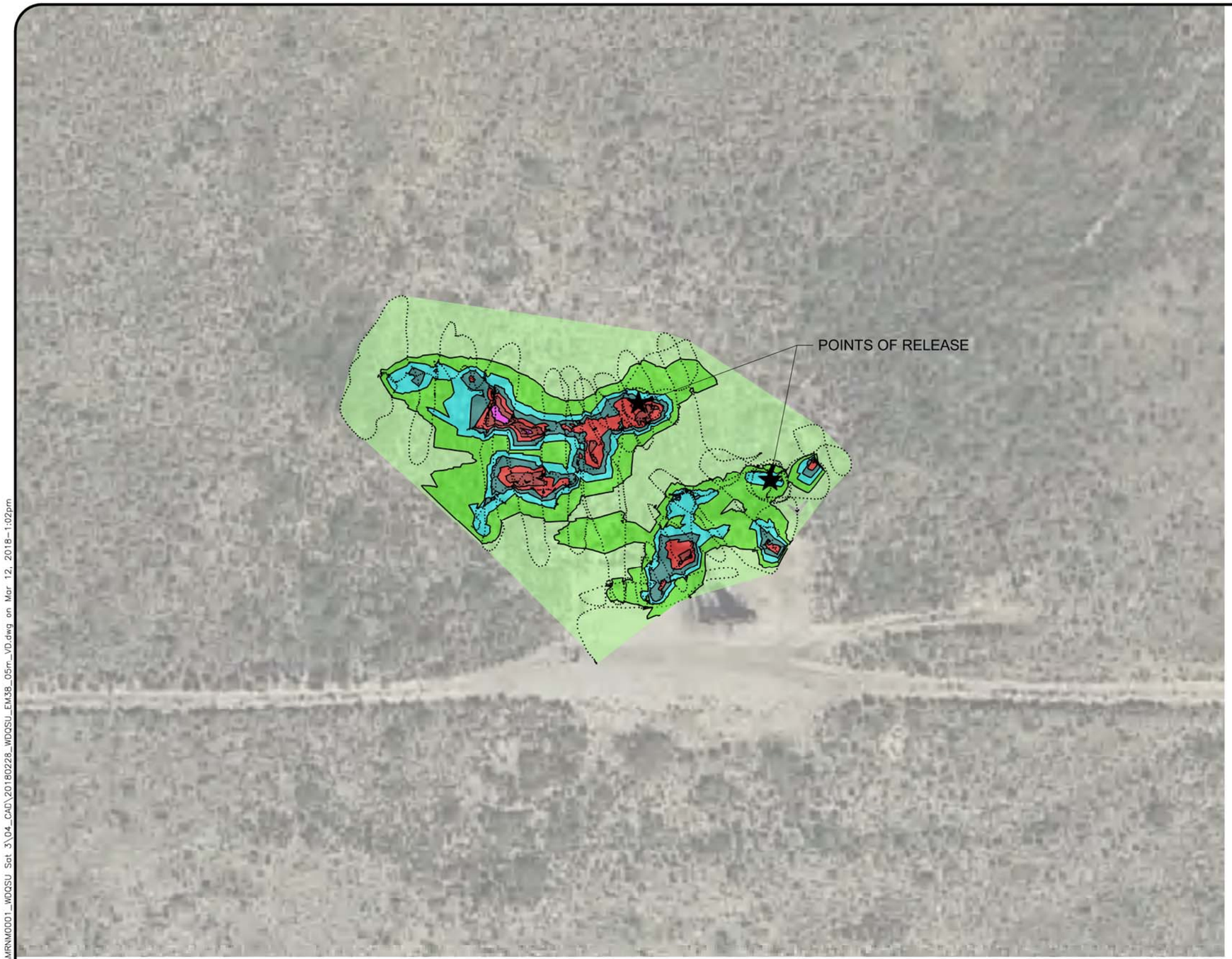

LEGEND

★ LOCATION OF RELEASE POINTS

× LOCATION OF EM38-MK2 GROUND CONDUCTIVITY MEASUREMENT IN mmhos/m

APPARENT GROUND CONDUCTIVITIES

Minimum mmhos/m	Maximum mmhos/m	Color
0	50	
50	100	
100	150	
150	200	
200	250	
250	300	
300	350+	

N

25 0 25 50
SCALE FEET

NOTES:

1) EM SURVEY PERFORMED BY ENVIRO CLEAN CARDINAL, LLC ON FEBRUARY 28, 2018.
2) EM SURVEY CONDUCTED BY GEORGE H. (BUDDY) RICHARDSON, P.G. USING GEONICS EM38-MK2 GROUND CONDUCTIVITY METER.
3) AERIAL PHOTOGRAPH DATED NOVEMBER 22, 2016, GEOREFERENCED FROM GOOGLE EARTH IMAGE SERVICES.

ENVIRO CLEAN CARDINAL
Enviro Clean Cardinal, LLC
2405 East County Road 123
Midland, Texas 79706
432.301.0209
www.EnviroCleanPS.com

DOCUMENT TITLE: RELEASE CHARACTERIZATION WORK PLAN

FIGURE TITLE: ***EM38 0.50-METER VERTICAL DIPOLE SURVEY RESULTS***

CLIENT: RAM ENERGY RESOURCES TULSA, OKLAHOMA

LOCATION: WEST DOLLARHIDE QUEEN SAND UNIT #99 FLOWLINE RELEASE SECTION 31, T24S, R38E, LEA COUNTY, NEW MEXICO

DESIGNED BY	GHR\JK		
APPROVED BY	GHR\JK	SCALE	1"= 50'
DRAWN BY	SKG	DATE	3/12/2018

PROJECT NUMBER	FIGURE NUMBER
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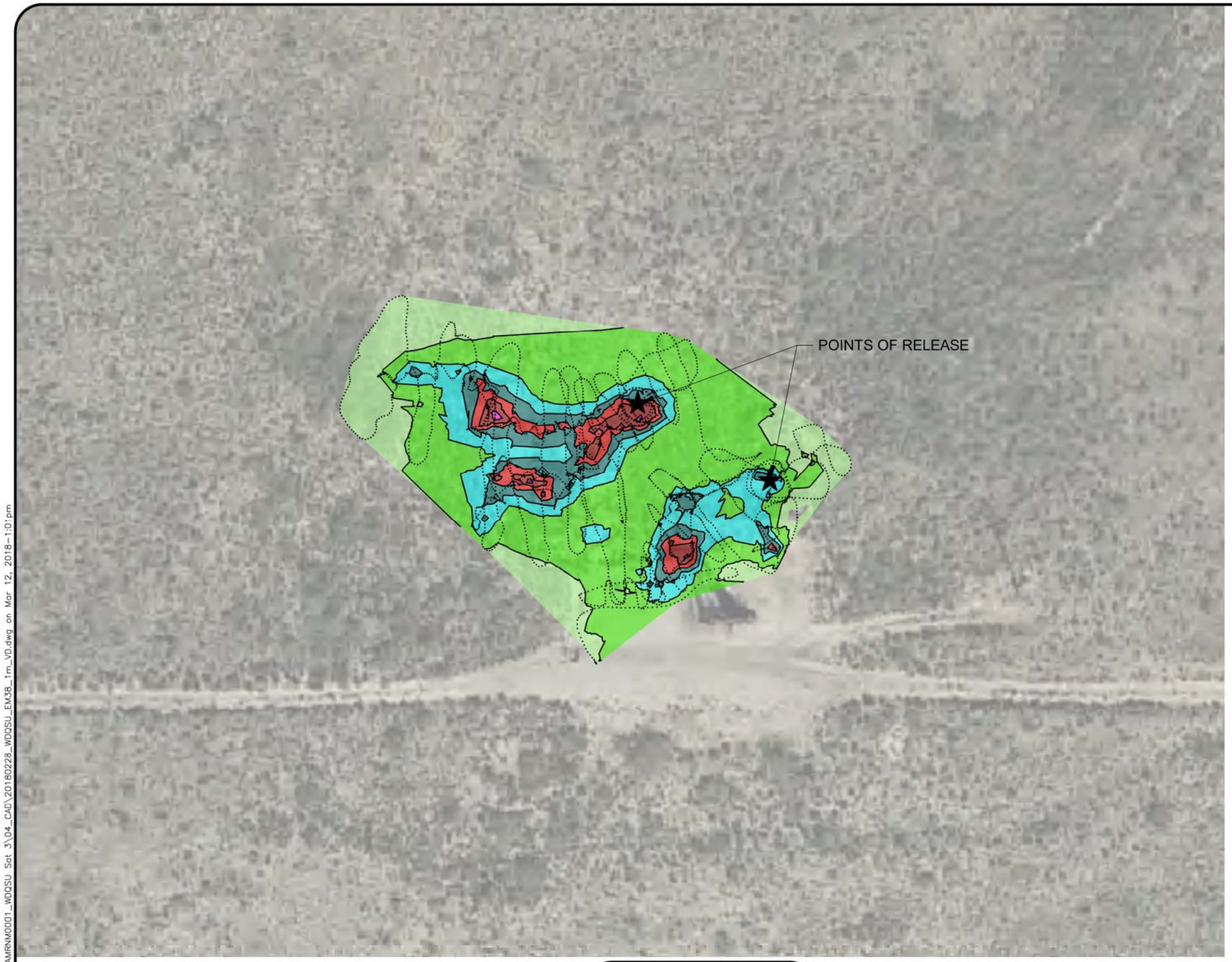

LEGEND

★ LOCATION OF RELEASE POINTS

× LOCATION OF EM38-MK2 GROUND CONDUCTIVITY MEASUREMENT IN mmhos/m

APPARENT GROUND CONDUCTIVITIES

Minimum mmhos/m	Maximum mmhos/m	Color
0	50	
50	100	
100	150	
150	200	
200	250	
250	300	
300	350+	

N

25 0 25 50
SCALE FEET

NOTES:

1) EM SURVEY PERFORMED BY ENVIRO CLEAN CARDINAL, LLC ON FEBRUARY 28, 2018.
2) EM SURVEY CONDUCTED BY GEORGE H. (BUDDY) RICHARDSON, P.G. USING GEONICS EM38-MK2 GROUND CONDUCTIVITY METER.
3) AERIAL PHOTOGRAPH DATED NOVEMBER 22, 2016, GEOREFERENCED FROM GOOGLE EARTH IMAGE SERVICES.

ENVIRO CLEAN CARDINAL
Enviro Clean Cardinal, LLC
2405 East County Road 123
Midland, Texas 79706
432.301.0209
www.EnviroCleanPS.com

DOCUMENT TITLE: RELEASE CHARACTERIZATION WORK PLAN

FIGURE TITLE: ***EM38 1.0-METER VERTICAL DIPOLE SURVEY RESULTS***

CLIENT: RAM ENERGY RESOURCES, TULSA, OKLAHOMA

LOCATION: WEST DOLLARHIDE QUEEN SAND UNIT #99 FLOWLINE RELEASE, SECTION 31, T24S, R38E, LEA COUNTY, NEW MEXICO

DESIGNED BY	GHR\JK		
APPROVED BY	GHR\JK	SCALE	1"= 50'
DRAWN BY	SKG	DATE	3/12/2018

PROJECT NUMBER	FIGURE NUMBER
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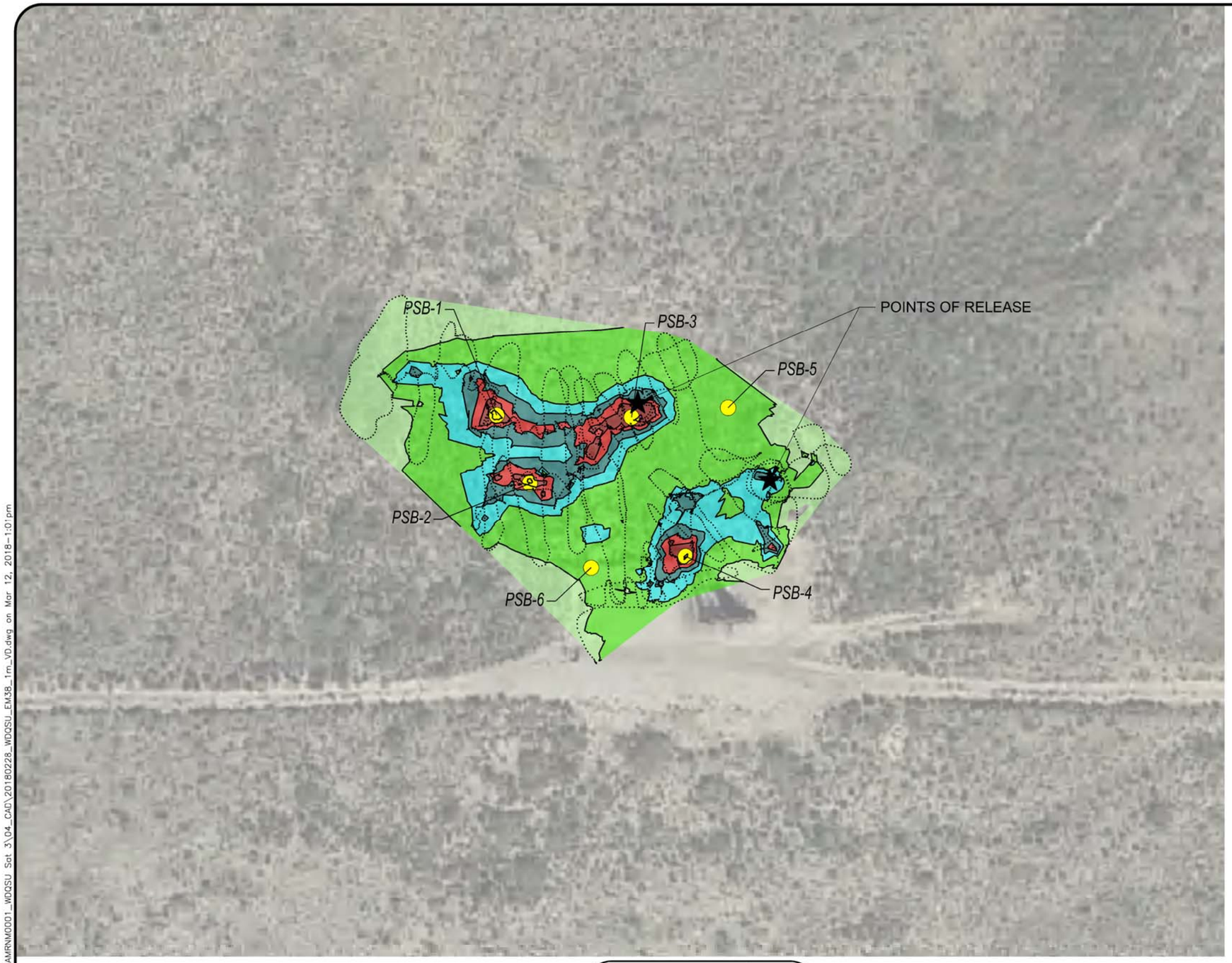

LEGEND

★ LOCATION OF RELEASE POINTS

× LOCATION OF EM38-MK2 GROUND CONDUCTIVITY MEASUREMENT IN mmhos/m

PSB-1 LOCATION OF PROPOSED SOIL SAMPLES

APPARENT GROUND CONDUCTIVITIES

Minimum mmhos/m	Maximum mmhos/m	Color
0	50	
50	100	
100	150	
150	200	
200	250	
250	300	
300	350+	

N

25 0 25 50
SCALE FEET

NOTES:

1) EM SURVEY PERFORMED BY ENVIRO CLEAN CARDINAL, LLC ON FEBRUARY 28, 2018.
2) EM SURVEY CONDUCTED BY GEORGE H. (BUDDY) RICHARDSON, P.G. USING GEONICS EM38-MK2 GROUND CONDUCTIVITY METER.
3) AERIAL PHOTOGRAPH DATED NOVEMBER 22, 2016, GEOREFERENCED FROM GOOGLE EARTH IMAGE SERVICES.

ENVIRO CLEAN CARDINAL
Enviro Clean Cardinal, LLC
2405 East County Road 123
Midland, Texas 79706
432.301.0209
www.EnviroCleanPS.com

DOCUMENT TITLE: RELEASE CHARACTERIZATION WORK PLAN

FIGURE TITLE: ***PROPOSED SOIL BORINGS***

CLIENT: RAM ENERGY RESOURCES, TULSA, OKLAHOMA

LOCATION: WEST DOLLARHIDE QUEEN SAND UNIT #99 FLOWLINE RELEASE, SECTION 31, T24S, R38E, LEA COUNTY, NEW MEXICO

DESIGNED BY	GHR\JK		
APPROVED BY	GHR\JK	SCALE	1"= 50'
DRAWN BY	SKG	DATE	3/12/2018

PROJECT NUMBER	FIGURE NUMBER
RAMRNM0001	5

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ATTACHMENT A

NMOSE WATER COLUMN REPORTS

New Mexico Office of the State Engineer

Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters) (In feet)

POD Number	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
CP 00084 POD2		CP	LE		2	4	36	24S	37E	678176	3561065*	1707	180	92	88
CP 00085 POD1		CP	LE	4	2	2	36	24S	37E	678261	3561768*	1737	109	82	27
CP 00514 POD1		CP	LE	2	2	2	05	25S	38E	681508	3560414*	1781	140	105	35
CP 00514 POD1	C	CP	LE	2	2	2	05	25S	38E	681508	3560414*	1781	140	105	35
CP 00084 POD1		CP	LE	2	2	2	36	24S	37E	678261	3561968*	1819	98	77	21

Average Depth to Water: **92 feet**

Minimum Depth: **77 feet**

Maximum Depth: **105 feet**

Record Count: 5

Basin/County Search:

County: Lea

UTMNAD83 Radius Search (in meters):

Easting (X): 679881.43 **Northing (Y):** 3561139.99 **Radius:** 2000

***UTM location was derived from PLSS - see Help**

2/21/18 9:55 AM

WATER COLUMN/ AVERAGE DEPTH TO WATER

ATTACHMENT B

NMOCD C-141

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised April 3, 2017

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

[X] Initial Report [ ] Final Report

Name of Company	RAM Energy LLC	Contact	Connie Swan
Address	5100 E Skelly Drive, Suite 600	Telephone No.	(918) 621-6533
Facility Name	West Dollarhide Queen Sand Unit #92	Facility Type	Well site

Surface Owner	George Willis	Mineral Owner	Danglade Speight Family	API No.	30-025-30131

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
I	31	24S	38E	1360	North	970	East	Lea

Latitude 32.1703148 **Longitude** -103.0941925 NAD83

NATURE OF RELEASE

Type of Release	Oil and saltwater	Volume of Release 3 bo, 12 bw	Volume Recovered none
Source of Release	Flowline	Date and Hour of Occurrence	Date and Hour of Discovery 1/31/18 11:30am
Was Immediate Notice Given? [X] Yes [ ] No [ ] Not Required		If YES, To Whom? Olivia Yu, Hobbs District Office	
By Whom?	Connie Swan	Date and Hour	1/31/18 3:30pm
Was a Watercourse Reached? [ ] Yes [X] No		If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

RECEIVED
By Olivia Yu at 7:25 am, Feb 12, 2018

Describe Cause of Problem and Remedial Action Taken.*

Leak from WDQSU #99 flowline that runs close to WDQSU #92 well. Pumper shut in well and stopped leak.

Describe Area Affected and Cleanup Action Taken.*

Area approximately 50' x 300'. Contaminated soil will be excavated and removed.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: CSwan	OIL CONSERVATION DIVISION
Printed Name: Connie Swan	Approved by Environmental Specialist:
Title: Regulatory Administrator	Approval Date: 2/12/2018 Expiration Date:
E-mail Address: csswan@swanderlandok.com	Conditions of Approval: see attached directive Attached [✓]
Date: 2/7/18 Phone: (918) 621-6533	

* Attach Additional Sheets If Necessary

1RP-4961 nOY1804327005 pOY1804327381

Operator/Responsible Party,

The OCD has received the form C-141 you provided on _2/7/2018_ regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number _1RP-4961__ has been assigned. **Please refer to this case number in all future correspondence.**

It is the Division's obligation under both the Oil & Gas Act and Water Quality Act to provide for the protection of public health and the environment. Our regulations (19.15.29.11 NMAC) state the following,

> *The responsible person shall complete division-approved corrective action for releases that endanger public health or the environment. The responsible person shall address releases in accordance with a remediation plan submitted to and approved by the division or with an abatement plan submitted in accordance with 19.15.30 NMAC.* [emphasis added]

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District _1_ office in __Hobbs____ on or before _3/12/2018_. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

The goals of a characterization effort are: 1) determination of the lateral and vertical extents along with the magnitude of soil contamination. 2) determine if groundwater or surface waters have been impacted. 3) If groundwater or surface waters have been impacted, what are the extents and magnitude of that impact. 4) The characterization of any other adverse impacts that may have occurred (examples: impacts on vegetation, impacts on wildlife, air quality, loss of use of property, etc.). To meet these goals as quickly as possible, the following items must, at a minimum, be addressed in the release characterization workplan and subsequent reporting:

● Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C_6 thru C_{36}), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.

● Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C_6 thru C_{36}), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.

● Nominal detection limits for field and laboratory analyses must be provided.

● Composite sampling is not generally allowed.

● Field screening and assessment techniques are acceptable (headspace, titration, EC [include algorithm for validation purposes], EM, etc.), but the sampling and assay procedures must be clearly defined. Copies of field notes are highly desirable. A statistically significant set of split samples must be submitted for confirmatory laboratory analysis, including the laterally farthest and vertically deepest sets of soil samples. Make sure there are at least two soil samples submitted

for laboratory analysis from each borehole or test pit (highest observed contamination and deepest depth investigated). Copies of the actual laboratory results must be provided including chain of custody documentation.

●Probable depth to shallowest protectable groundwater and lateral distance to nearest surface water. If there is an estimate of groundwater depth, the information used to arrive at that estimate must be provided. If there is a reasonable assumption that the depth to protectable water is 50 feet or less, the responsible party should anticipate the need for at least one groundwater monitoring well to be installed in the area of likely maximum contamination.

● If groundwater contamination is encountered, an additional investigation workplan may be required to determine the extents of that contamination. Groundwater and/or surface water samples, if any, must be analyzed by a competent laboratory for volatile organic hydrocarbons (typically Method 8260 full list), total dissolved solids, pH, major anions and cations including chloride and sulfate, dissolved iron, and dissolved manganese. The investigation workplan must provide the groundwater sampling method(s) and sample handling protocols. To the fullest extent possible, aqueous analyses must be undertaken using nominal method detection limits. As with the soil analyses, copies of the actual laboratory results must be provided including chain of custody documentation.

● Accurately scaled and well-drafted site maps must be provided providing the location of borings, test pits, monitoring wells, potentially impacted areas, and significant surface features including roads and site infrastructure that might limit either the release characterization or remedial efforts. Field sketches may be included in subsequent reporting, but should not be considered stand-alone documentation of the site's layout. Digital photographic documentation of the location and fieldwork is recommended, especially if unusual circumstances are encountered.

Nothing herein should be interpreted to preclude emergency response actions or to imply immediate remediation by removal cannot proceed as warranted. Nonetheless, characterization of impacts and confirmation of the effectiveness of remedial efforts must still be provided to the OCD before any release incident will be closed.

Jim Griswold
OCD Environmental Bureau Chief
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
505-476-3465
jim.griswold@state.nm.us

ATTACHMENT C

EM38 SURVEY DATA RESULTS

Ground Conductivity Measurements
RAM Energy Resources, WDQSU Well #99, Lea County, New Mexico

				Conductivity mmhos/m		In-Phase	
Reading	Sec	Latitude	Longitude	0.5m VD	1m VD	0.5m VD	1m VD
1	0.0	32.17024833	-103.09434883	35.66	47.93	0.04	0.31
2	0.5	32.17024846	-103.09434887	35.74	48.20	0.04	0.31
3	1.1	32.17024849	-103.09434881	35.74	48.48	0.05	0.33
4	1.6	32.17024857	-103.09434882	35.70	48.28	0.05	0.34
5	2.1	32.17024900	-103.09434924	35.51	48.44	0.05	0.34
6	2.6	32.17024948	-103.09434975	35.43	48.24	0.06	0.36
7	3.1	32.17025015	-103.09435054	35.59	48.56	0.06	0.35
8	3.7	32.17025106	-103.09435115	35.08	48.71	0.09	0.42
9	4.2	32.17025247	-103.09435130	33.59	47.85	0.09	0.41
10	4.7	32.17025433	-103.09435238	28.87	43.05	0.07	0.32
11	5.2	32.17025687	-103.09435498	27.15	41.72	0.07	0.32
12	5.8	32.17026003	-103.09435801	27.62	42.54	0.06	0.31
13	6.3	32.17026388	-103.09436152	28.67	43.13	0.02	0.25
14	6.8	32.17026816	-103.09436442	29.84	43.75	-0.02	0.22
15	7.3	32.17027281	-103.09436682	30.90	45.35	-0.03	0.21
16	7.8	32.17027758	-103.09436933	32.31	46.84	-0.04	0.19
17	8.4	32.17028243	-103.09437190	32.70	47.70	-0.03	0.21
18	8.9	32.17028805	-103.09437435	31.09	44.92	-0.03	0.14
19	9.4	32.17029397	-103.09437677	26.88	40.70	0.08	0.10
20	9.9	32.17029947	-103.09437702	24.34	38.59	0.12	0.17
21	10.4	32.17030487	-103.09437676	23.05	37.93	0.13	0.22
22	11.0	32.17030788	-103.09437480	25.04	40.82	0.10	0.28
23	11.5	32.17031059	-103.09437262	26.21	42.97	0.11	0.28
24	12.0	32.17031262	-103.09436980	28.36	45.43	0.10	0.32
25	12.5	32.17031463	-103.09436682	33.40	49.02	0.10	0.34
26	13.1	32.17031659	-103.09436176	17.62	44.22	0.05	0.22
27	13.6	32.17031844	-103.09435650	35.23	45.12	0.08	0.19
28	14.1	32.17031961	-103.09435000	38.01	54.65	0.08	0.26
29	14.6	32.17032063	-103.09434348	41.06	58.52	0.09	0.31
30	15.1	32.17032114	-103.09433678	40.94	60.16	0.09	0.30
31	15.7	32.17032141	-103.09433011	40.90	61.56	0.09	0.31
32	16.2	32.17032118	-103.09432354	38.98	61.21	0.09	0.31
33	16.7	32.17032084	-103.09431706	40.00	62.19	0.15	0.40
34	17.2	32.17032031	-103.09431071	40.04	63.24	0.12	0.48
35	17.8	32.17032013	-103.09430424	40.08	62.66	0.11	0.45
36	18.3	32.17032032	-103.09429765	40.39	64.30	0.13	0.46
37	18.8	32.17032043	-103.09429098	40.74	65.39	0.12	0.48
38	19.3	32.17032049	-103.09428420	41.99	67.66	0.14	0.56
39	19.8	32.17032040	-103.09427744	43.52	70.16	0.14	0.64
40	20.4	32.17032025	-103.09427071	45.90	73.71	0.16	0.76
41	20.9	32.17032040	-103.09426371	50.00	76.33	0.17	0.88
42	21.4	32.17032065	-103.09425665	52.81	81.21	0.17	0.93
43	21.9	32.17032121	-103.09424975	54.02	84.26	0.19	0.98
44	22.5	32.17032183	-103.09424290	53.24	82.93	0.18	0.90
45	23.0	32.17032345	-103.09423648	53.20	80.39	0.15	0.76
46	23.5	32.17032517	-103.09423011	53.83	79.84	0.15	0.66
47	24.0	32.17032735	-103.09422457	54.18	82.46	0.15	0.62
48	24.5	32.17032962	-103.09421912	53.24	82.31	0.12	0.57
49	25.1	32.17033266	-103.09421423	52.66	81.80	0.14	0.53
50	25.6	32.17033598	-103.09420923	53.91	81.95	0.10	0.47
51	26.1	32.17034005	-103.09420437	55.90	82.23	0.09	0.43
52	26.6	32.17034411	-103.09419925	58.52	86.52	0.09	0.48
53	27.2	32.17034786	-103.09419365	54.69	86.33	0.09	0.43
54	27.7	32.17035111	-103.09418781	50.00	82.54	0.09	0.41
55	28.2	32.17035342	-103.09418148	43.63	73.01	0.10	0.48
56	28.7	32.17035492	-103.09417498	38.79	64.06	0.11	0.48
57	29.3	32.17035530	-103.09416824	36.45	58.98	0.13	0.53
58	29.8	32.17035571	-103.09416160	29.34	46.13	0.13	0.41
59	30.3	32.17035614	-103.09415507	31.52	43.63	0.19	0.62
60	30.8	32.17035656	-103.09414868	29.02	45.66	0.16	0.83
61	31.3	32.17035697	-103.09414239	28.13	43.63	0.14	0.82
62	31.9	32.17035833	-103.09413800	26.33	42.15	0.15	0.79
63	32.4	32.17036015	-103.09413452	25.86	42.97	0.17	0.79

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64	32.9	32.17036337	-103.09413545	27.46	43.48	0.16	0.73
65	33.4	32.17036702	-103.09413776	28.95	43.52	0.12	0.62
66	33.9	32.17036848	-103.09414323	29.53	43.56	0.11	0.56
67	34.5	32.17036954	-103.09414930	30.82	44.84	0.11	0.52
68	35.0	32.17036912	-103.09415593	32.62	47.62	0.09	0.47
69	35.5	32.17036857	-103.09416262	35.59	53.83	0.10	0.50
70	36.0	32.17036760	-103.09416937	38.24	57.31	0.08	0.45
71	36.6	32.17036665	-103.09417606	44.41	62.85	0.07	0.40
72	37.1	32.17036593	-103.09418219	48.79	70.70	0.07	0.47
73	37.6	32.17036504	-103.09418833	56.88	81.72	0.07	0.43
74	38.1	32.17036342	-103.09419443	64.38	94.38	0.05	0.39
75	38.6	32.17036185	-103.09420062	73.40	103.36	0.04	0.39
76	39.2	32.17036045	-103.09420694	83.63	112.46	0.04	0.40
77	39.7	32.17035904	-103.09421280	89.30	120.23	0.03	0.39
78	40.2	32.17035762	-103.09421781	91.29	130.00	0.03	0.41
79	40.7	32.17035639	-103.09422233	93.95	138.52	0.04	0.43
80	41.3	32.17035539	-103.09422623	96.95	142.62	0.03	0.45
81	41.8	32.17035495	-103.09422897	106.41	151.56	0.04	0.46
82	42.3	32.17035500	-103.09423068	113.63	154.61	0.04	0.47
83	42.8	32.17035502	-103.09423126	122.07	158.24	0.06	0.48
84	43.3	32.17035503	-103.09423110	127.46	160.90	0.09	0.49
85	43.9	32.17035489	-103.09423109	128.28	162.31	0.11	0.48
86	44.4	32.17035470	-103.09423115	127.07	161.02	0.11	0.49
87	44.9	32.17035468	-103.09423117	128.09	161.41	0.11	0.50
88	45.4	32.17035471	-103.09423118	130.20	162.62	0.11	0.51
89	46.0	32.17035466	-103.09423113	132.34	164.22	0.11	0.51
90	46.5	32.17035459	-103.09423108	131.60	164.34	0.11	0.51
91	47.0	32.17035459	-103.09423106	129.84	163.44	0.10	0.51
92	47.5	32.17035459	-103.09423105	130.04	164.02	0.10	0.50
93	48.0	32.17035466	-103.09423106	129.49	163.95	0.10	0.51
94	48.6	32.17035471	-103.09423107	127.31	163.59	0.10	0.51
95	49.1	32.17035458	-103.09423106	125.86	162.85	0.09	0.52
96	49.6	32.17035446	-103.09423106	126.41	163.98	0.10	0.52
97	50.1	32.17035435	-103.09423114	126.25	163.98	0.10	0.54
98	50.7	32.17035425	-103.09423123	125.70	164.06	0.09	0.54
99	51.2	32.17035418	-103.09423136	128.24	165.74	0.10	0.55
100	51.7	32.17035397	-103.09423172	131.37	167.42	0.11	0.56
101	52.2	32.17035356	-103.09423245	136.06	169.14	0.14	0.57
102	52.7	32.17035308	-103.09423400	151.41	173.56	0.21	0.59
103	53.3	32.17035255	-103.09423649	160.90	166.84	0.20	0.53
104	53.8	32.17035190	-103.09423816	167.66	144.14	0.09	0.53
105	54.3	32.17035116	-103.09423917	184.18	128.52	0.05	0.55
106	54.8	32.17035134	-103.09424096	194.69	121.29	0.06	0.57
107	55.4	32.17035204	-103.09424321	209.69	116.64	0.08	0.55
108	55.9	32.17035234	-103.09424648	218.48	127.23	0.06	0.48
109	56.4	32.17035248	-103.09425013	200.82	147.58	0.03	0.46
110	56.9	32.17035214	-103.09425374	176.84	139.34	0.05	0.46
111	57.4	32.17035169	-103.09425735	151.88	137.03	0.04	0.44
112	58.0	32.17035087	-103.09426141	132.34	148.20	0.03	0.43
113	58.5	32.17035000	-103.09426553	119.69	159.65	0.06	0.42
114	59.0	32.17035020	-103.09427091	105.43	146.80	0.07	0.42
115	59.5	32.17035045	-103.09427635	91.13	119.06	0.07	0.41
116	60.1	32.17035095	-103.09428218	84.69	111.33	0.07	0.43
117	60.6	32.17035144	-103.09428802	76.09	102.97	0.08	0.43
118	61.1	32.17035182	-103.09429389	72.07	93.16	0.10	0.42
119	61.6	32.17035209	-103.09429988	66.84	82.85	0.09	0.41
120	62.1	32.17035199	-103.09430627	68.67	86.64	0.09	0.39
121	62.7	32.17035168	-103.09431273	61.52	86.29	0.09	0.41
122	63.2	32.17035092	-103.09431921	59.26	75.70	0.07	0.40
123	63.7	32.17035001	-103.09432583	60.39	76.37	0.07	0.39
124	64.2	32.17034888	-103.09433256	55.23	72.31	0.06	0.36
125	64.8	32.17034744	-103.09433934	47.73	64.84	0.08	0.37
126	65.3	32.17034565	-103.09434618	41.09	57.77	0.09	0.35
127	65.8	32.17034357	-103.09435308	36.17	60.35	0.11	0.33
128	66.3	32.17034128	-103.09435998	32.73	54.34	0.10	0.32

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129	66.8	32.17033981	-103.09436540	28.79	48.40	0.09	0.27
130	67.4	32.17033879	-103.09437002	26.88	45.08	0.09	0.28
131	67.9	32.17033756	-103.09437225	25.31	43.13	0.09	0.26
132	68.4	32.17033626	-103.09437364	25.94	43.09	0.09	0.25
133	68.9	32.17033335	-103.09437175	26.48	43.83	0.09	0.26
134	69.5	32.17033010	-103.09436916	28.20	45.16	0.08	0.28
135	70.0	32.17032794	-103.09436532	31.09	49.57	0.07	0.27
136	70.5	32.17032588	-103.09436134	33.52	53.13	0.09	0.31
137	71.0	32.17032464	-103.09435592	35.78	54.34	0.09	0.29
138	71.5	32.17032350	-103.09435049	38.28	56.48	0.09	0.30
139	72.1	32.17032306	-103.09434566	39.22	58.79	0.08	0.28
140	72.6	32.17032289	-103.09434092	42.23	62.07	0.08	0.29
141	73.1	32.17032399	-103.09433725	42.34	62.81	0.07	0.29
142	73.6	32.17032575	-103.09433436	41.29	62.46	0.06	0.26
143	74.2	32.17032948	-103.09433404	44.02	67.38	0.07	0.29
144	74.7	32.17033367	-103.09433405	47.19	68.13	0.07	0.31
145	75.2	32.17033875	-103.09433471	48.40	55.27	0.05	0.30
146	75.7	32.17034346	-103.09433472	46.91	49.26	0.05	0.33
147	76.2	32.17034763	-103.09433385	41.95	61.64	0.04	0.34
148	76.8	32.17035103	-103.09433287	40.00	62.93	0.04	0.34
149	77.3	32.17035368	-103.09433178	38.71	61.56	0.04	0.35
150	77.8	32.17035446	-103.09432960	37.03	58.09	0.07	0.33
151	78.3	32.17035395	-103.09432664	40.23	62.34	0.09	0.34
152	78.9	32.17035154	-103.09432515	46.13	68.63	0.09	0.36
153	79.4	32.17034819	-103.09432438	49.61	67.11	0.09	0.36
154	79.9	32.17034414	-103.09432385	54.53	50.23	0.11	0.39
155	80.4	32.17033985	-103.09432341	64.02	52.93	0.11	0.39
156	80.9	32.17033676	-103.09432166	62.54	75.27	0.11	0.38
157	81.5	32.17033388	-103.09431968	56.76	84.81	0.13	0.38
158	82.0	32.17033098	-103.09431704	50.78	79.26	0.14	0.41
159	82.5	32.17032810	-103.09431436	48.56	75.43	0.16	0.40
160	83.0	32.17032688	-103.09431100	48.40	73.44	0.12	0.42
161	83.6	32.17032607	-103.09430782	48.24	71.99	0.08	0.43
162	84.1	32.17032908	-103.09430643	53.83	76.52	0.12	0.39
163	84.6	32.17033240	-103.09430536	62.27	82.46	0.12	0.39
164	85.1	32.17033693	-103.09430569	57.62	71.76	0.08	0.35
165	85.6	32.17034147	-103.09430603	61.21	49.34	0.09	0.38
166	86.2	32.17034602	-103.09430642	61.25	67.54	0.09	0.37
167	86.7	32.17035028	-103.09430655	47.93	72.89	0.06	0.34
168	87.2	32.17035409	-103.09430623	41.84	66.72	0.05	0.37
169	87.7	32.17035671	-103.09430431	40.35	63.59	0.03	0.37
170	88.3	32.17035783	-103.09430036	39.77	64.53	0.06	0.38
171	88.8	32.17035716	-103.09429700	43.59	69.73	0.09	0.42
172	89.3	32.17035484	-103.09429418	48.32	75.86	0.09	0.41
173	89.8	32.17035254	-103.09429160	54.57	82.31	0.08	0.40
174	90.3	32.17035025	-103.09428915	71.21	96.45	0.11	0.41
175	90.9	32.17034662	-103.09428849	73.71	95.12	0.11	0.41
176	91.4	32.17034241	-103.09428863	84.49	73.59	0.10	0.39
177	91.9	32.17033919	-103.09428797	86.72	49.73	0.08	0.40
178	92.4	32.17033626	-103.09428709	72.77	54.10	0.09	0.38
179	93.0	32.17033233	-103.09428639	69.41	76.25	0.10	0.41
180	93.5	32.17032825	-103.09428572	58.20	90.94	0.11	0.41
181	94.0	32.17032427	-103.09428483	50.86	86.68	0.12	0.48
182	94.5	32.17032037	-103.09428385	47.34	78.79	0.12	0.53
183	95.0	32.17031934	-103.09428017	47.93	75.59	0.14	0.60
184	95.6	32.17031880	-103.09427662	50.20	76.88	0.14	0.62
185	96.1	32.17032170	-103.09427400	53.52	80.16	0.10	0.59
186	96.6	32.17032483	-103.09427166	63.44	91.25	0.08	0.55
187	97.1	32.17032888	-103.09427037	74.06	101.06	0.07	0.46
188	97.7	32.17033298	-103.09426953	86.21	91.29	0.08	0.40
189	98.2	32.17033694	-103.09426977	108.83	73.59	0.08	0.40
190	98.7	32.17034053	-103.09427000	99.18	69.69	0.07	0.38
191	99.2	32.17034342	-103.09427021	89.49	103.09	0.06	0.39
192	99.7	32.17034682	-103.09427064	92.70	124.53	0.07	0.40
193	100.3	32.17035083	-103.09427133	82.58	123.98	0.07	0.36

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194	100.8	32.17035480	-103.09427309	69.84	95.31	0.06	0.37
195	101.3	32.17035875	-103.09427576	60.82	78.59	0.07	0.39
196	101.8	32.17036331	-103.09427747	57.15	81.76	0.09	0.40
197	102.4	32.17036822	-103.09427860	50.31	80.43	0.08	0.41
198	102.9	32.17037258	-103.09427915	46.56	77.27	0.09	0.42
199	103.4	32.17037671	-103.09427945	43.79	73.24	0.08	0.41
200	103.9	32.17038054	-103.09427931	42.31	70.70	0.06	0.40
201	104.4	32.17038431	-103.09427907	43.32	71.91	0.06	0.42
202	105.0	32.17038429	-103.09427607	47.19	77.03	0.07	0.40
203	105.5	32.17038380	-103.09427271	60.31	94.77	0.09	0.42
204	106.0	32.17038035	-103.09427058	72.07	105.16	0.09	0.44
205	106.5	32.17037676	-103.09426851	103.71	88.01	0.07	0.46
206	107.1	32.17037211	-103.09426715	141.45	101.95	0.08	0.46
207	107.6	32.17036745	-103.09426596	169.96	127.89	0.09	0.46
208	108.1	32.17036278	-103.09426585	166.76	141.02	0.09	0.46
209	108.6	32.17035832	-103.09426590	149.88	130.51	0.09	0.46
210	109.1	32.17035456	-103.09426649	146.60	145.35	0.09	0.47
211	109.7	32.17035104	-103.09426693	141.17	179.65	0.08	0.44
212	110.2	32.17034808	-103.09426699	128.01	185.23	0.08	0.44
213	110.7	32.17034488	-103.09426679	133.48	145.43	0.08	0.42
214	111.2	32.17034135	-103.09426620	168.83	115.55	0.07	0.40
215	111.8	32.17033744	-103.09426570	180.16	141.64	0.05	0.42
216	112.3	32.17033313	-103.09426529	152.07	142.46	0.02	0.42
217	112.8	32.17032927	-103.09426350	146.17	123.83	0.05	0.46
218	113.3	32.17032578	-103.09426063	113.59	91.45	0.06	0.51
219	113.8	32.17032418	-103.09425709	90.90	89.45	0.07	0.55
220	114.4	32.17032357	-103.09425319	81.48	95.12	0.11	0.60
221	114.9	32.17032491	-103.09424947	82.15	96.09	0.10	0.59
222	115.4	32.17032695	-103.09424581	86.99	101.06	0.07	0.57
223	115.9	32.17033035	-103.09424454	100.00	115.90	0.11	0.54
224	116.5	32.17033406	-103.09424381	107.19	119.02	0.08	0.52
225	117.0	32.17033713	-103.09424570	136.45	99.49	0.04	0.48
226	117.5	32.17034012	-103.09424786	186.25	105.47	0.05	0.46
227	118.0	32.17034353	-103.09424960	204.45	136.76	0.05	0.45
228	118.5	32.17034696	-103.09425133	201.68	154.06	0.04	0.44
229	119.1	32.17035061	-103.09425314	190.12	157.54	0.05	0.46
230	119.6	32.17035423	-103.09425506	175.55	157.50	0.04	0.47
231	120.1	32.17035776	-103.09425753	180.86	152.03	0.05	0.46
232	120.6	32.17036155	-103.09425988	180.43	145.20	0.05	0.49
233	121.2	32.17036615	-103.09426188	152.42	132.31	0.03	0.46
234	121.7	32.17037068	-103.09426358	134.69	112.27	0.06	0.48
235	122.2	32.17037514	-103.09426471	93.98	92.66	0.05	0.45
236	122.7	32.17037944	-103.09426648	67.19	91.88	0.03	0.44
237	123.2	32.17038357	-103.09426916	56.76	93.79	0.03	0.45
238	123.8	32.17038774	-103.09427197	51.41	87.58	0.03	0.44
239	124.3	32.17039194	-103.09427493	48.36	81.33	0.05	0.47
240	124.8	32.17039565	-103.09427600	46.52	77.62	0.07	0.55
241	125.3	32.17039902	-103.09427575	46.25	73.91	0.05	0.49
242	125.9	32.17040160	-103.09427397	49.22	78.28	0.05	0.48
243	126.4	32.17040379	-103.09427143	53.95	84.57	0.06	0.49
244	126.9	32.17040271	-103.09426784	58.75	90.16	0.07	0.53
245	127.4	32.17040057	-103.09426391	68.79	104.84	0.09	0.54
246	127.9	32.17039789	-103.09426135	78.95	122.34	0.09	0.55
247	128.5	32.17039511	-103.09425904	89.92	130.86	0.10	0.54
248	129.0	32.17039138	-103.09425704	105.66	119.81	0.09	0.56
249	129.5	32.17038757	-103.09425504	134.45	102.77	0.10	0.55
250	130.0	32.17038388	-103.09425228	164.06	127.58	0.12	0.61
251	130.6	32.17038023	-103.09424954	173.20	184.96	0.14	0.66
252	131.1	32.17037710	-103.09424704	161.25	198.20	0.15	0.66
253	131.6	32.17037389	-103.09424474	174.22	208.40	0.19	0.69
254	132.1	32.17037027	-103.09424330	173.32	218.48	0.18	0.66
255	132.6	32.17036644	-103.09424154	165.31	214.53	0.16	0.62
256	133.2	32.17036202	-103.09423889	160.16	199.96	0.01	0.53
257	133.7	32.17035784	-103.09423613	142.07	182.58	0.14	0.45
258	134.2	32.17035410	-103.09423321	113.24	151.91	0.17	0.55

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259	134.7	32.17035033	-103.09423012	96.68	142.93	0.19	0.55
260	135.3	32.17034651	-103.09422683	83.67	134.49	0.15	0.50
261	135.8	32.17034305	-103.09422333	77.27	120.59	0.16	0.49
262	136.3	32.17033994	-103.09421965	68.67	101.60	0.17	0.50
263	136.8	32.17033968	-103.09421643	66.88	93.98	0.13	0.45
264	137.3	32.17034125	-103.09421350	70.94	92.81	0.16	0.47
265	137.9	32.17034439	-103.09421198	75.90	98.01	0.16	0.46
266	138.4	32.17034822	-103.09421109	79.84	101.80	0.14	0.49
267	138.9	32.17035246	-103.09421201	94.84	114.92	0.14	0.49
268	139.4	32.17035681	-103.09421347	113.83	142.62	0.12	0.47
269	140.0	32.17036056	-103.09421602	142.23	140.08	0.13	0.51
270	140.5	32.17036423	-103.09421874	191.80	145.12	0.13	0.53
271	141.0	32.17036823	-103.09422066	201.25	183.71	0.13	0.57
272	141.5	32.17037224	-103.09422252	216.21	213.44	0.13	0.60
273	142.0	32.17037593	-103.09422396	232.77	238.09	0.14	0.63
274	142.6	32.17037963	-103.09422560	224.02	242.15	0.13	0.63
275	143.1	32.17038336	-103.09422869	220.90	233.52	0.14	0.65
276	143.6	32.17038696	-103.09423163	231.60	260.74	0.13	0.69
277	144.1	32.17039006	-103.09423401	216.48	265.94	0.14	0.72
278	144.7	32.17039363	-103.09423552	227.73	254.10	0.13	0.70
279	145.2	32.17039831	-103.09423485	218.05	254.53	0.07	0.60
280	145.7	32.17040266	-103.09423506	226.68	268.71	0.11	0.68
281	146.2	32.17040644	-103.09423673	191.06	232.93	0.13	0.69
282	146.7	32.17040972	-103.09423852	153.83	179.10	0.12	0.62
283	147.3	32.17041240	-103.09424047	134.49	162.77	0.12	0.61
284	147.8	32.17041562	-103.09424293	132.15	155.39	0.14	0.61
285	148.3	32.17041930	-103.09424584	105.27	122.77	0.23	0.66
286	148.8	32.17042270	-103.09424933	72.85	104.26	0.22	0.63
287	149.4	32.17042592	-103.09425318	56.68	100.43	0.20	0.65
288	149.9	32.17042931	-103.09425636	48.95	90.94	0.16	0.57
289	150.4	32.17043273	-103.09425927	44.49	83.83	0.18	0.61
290	150.9	32.17043626	-103.09426124	40.74	77.62	0.21	0.60
291	151.4	32.17043980	-103.09426297	37.58	72.46	0.21	0.62
292	152.0	32.17044314	-103.09426488	39.10	72.46	0.18	0.58
293	152.5	32.17044646	-103.09426681	38.91	71.06	0.17	0.59
294	153.0	32.17044941	-103.09426782	37.27	68.16	0.16	0.60
295	153.5	32.17045215	-103.09426858	37.77	69.14	0.14	0.61
296	154.1	32.17045178	-103.09426551	40.00	70.94	0.13	0.61
297	154.6	32.17045110	-103.09426243	43.56	74.18	0.19	0.65
298	155.1	32.17044855	-103.09425923	51.41	73.87	0.24	0.67
299	155.6	32.17044582	-103.09425610	48.36	73.95	0.27	0.58
300	156.1	32.17044248	-103.09425325	45.82	76.64	0.23	0.48
301	156.7	32.17043934	-103.09425004	50.27	83.36	0.26	0.48
302	157.2	32.17043662	-103.09424601	61.02	92.66	0.26	0.52
303	157.7	32.17043383	-103.09424191	82.23	106.21	0.29	0.59
304	158.2	32.17043091	-103.09423766	98.95	114.30	0.27	0.69
305	158.8	32.17042864	-103.09423353	88.63	110.16	0.26	0.68
306	159.3	32.17042703	-103.09422949	88.09	128.44	0.25	0.71
307	159.8	32.17042512	-103.09422622	90.20	153.01	0.21	0.72
308	160.3	32.17042296	-103.09422353	90.70	162.97	0.23	0.73
309	160.8	32.17042028	-103.09422065	104.69	178.52	0.24	0.77
310	161.4	32.17041731	-103.09421768	108.44	187.15	0.35	0.94
311	161.9	32.17041477	-103.09421477	131.76	170.82	0.33	0.88
312	162.4	32.17041237	-103.09421187	160.90	157.50	0.26	1.06
313	162.9	32.17040988	-103.09420893	173.40	176.84	0.24	0.79
314	163.5	32.17040737	-103.09420598	164.10	200.39	0.29	0.76
315	164.0	32.17040471	-103.09420278	168.56	220.90	0.32	0.78
316	164.5	32.17040205	-103.09419955	164.45	220.74	0.31	0.75
317	165.0	32.17039940	-103.09419625	140.23	198.59	0.30	0.72
318	165.5	32.17039676	-103.09419299	108.63	157.62	0.31	0.70
319	166.1	32.17039420	-103.09419009	82.15	125.23	0.31	0.65
320	166.6	32.17039164	-103.09418710	62.77	112.93	0.32	0.68
321	167.1	32.17038922	-103.09418363	51.45	103.59	0.31	0.64
322	167.6	32.17038674	-103.09417994	43.83	93.75	0.30	0.58
323	168.2	32.17038414	-103.09417567	39.14	81.72	0.28	0.58

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324	168.7	32.17038165	-103.09417150	36.02	74.10	0.30	0.59
325	169.2	32.17037939	-103.09416751	33.40	68.32	0.32	0.63
326	169.7	32.17037783	-103.09416349	31.45	63.59	0.32	0.62
327	170.2	32.17037727	-103.09415946	31.91	61.13	0.31	0.58
328	170.8	32.17037881	-103.09415582	31.76	58.79	0.30	0.58
329	171.3	32.17038118	-103.09415369	32.23	57.42	0.31	0.57
330	171.8	32.17038516	-103.09415350	33.36	58.48	0.30	0.57
331	172.3	32.17038998	-103.09415493	37.73	65.90	0.30	0.55
332	172.9	32.17039443	-103.09415743	34.30	63.16	0.29	0.58
333	173.4	32.17039871	-103.09416044	55.74	78.44	0.29	0.53
334	173.9	32.17040146	-103.09416340	55.16	98.01	0.33	0.55
335	174.4	32.17040370	-103.09416633	60.39	102.31	0.32	0.59
336	174.9	32.17040600	-103.09416912	68.36	103.98	0.30	0.57
337	175.5	32.17040831	-103.09417188	86.13	103.52	0.30	0.58
338	176.0	32.17041160	-103.09417433	118.28	111.56	0.29	0.64
339	176.5	32.17041496	-103.09417676	128.67	126.33	0.28	0.65
340	177.0	32.17041655	-103.09417885	110.23	130.47	0.32	0.71
341	177.6	32.17041830	-103.09418091	94.14	127.27	0.35	0.79
342	178.1	32.17042155	-103.09418277	82.15	125.08	0.32	0.74
343	178.6	32.17042479	-103.09418461	78.40	130.23	0.34	0.75
344	179.1	32.17042772	-103.09418619	75.12	133.52	0.36	0.80
345	179.6	32.17043039	-103.09418775	69.22	129.10	0.36	0.82
346	180.2	32.17043224	-103.09418923	67.58	126.41	0.36	0.81
347	180.7	32.17043422	-103.09419113	74.73	131.48	0.35	0.80
348	181.2	32.17043645	-103.09419384	72.85	131.48	0.23	0.67
349	181.7	32.17043824	-103.09419711	81.13	119.57	0.31	0.64
350	182.3	32.17043944	-103.09420111	99.18	108.48	0.31	0.68
351	182.8	32.17044085	-103.09420526	113.32	111.68	0.31	0.74
352	183.3	32.17044243	-103.09420953	103.16	127.07	0.32	0.76
353	183.8	32.17044440	-103.09421316	107.15	156.33	0.32	0.78
354	184.3	32.17044660	-103.09421638	107.46	171.64	0.30	0.76
355	184.9	32.17044850	-103.09421979	106.76	154.65	0.29	0.73
356	185.4	32.17045027	-103.09422327	121.06	136.52	0.29	0.73
357	185.9	32.17045298	-103.09422685	116.29	123.91	0.29	0.71
358	186.4	32.17045597	-103.09423046	88.95	105.04	0.29	0.70
359	187.0	32.17045813	-103.09423383	72.23	99.38	0.29	0.68
360	187.5	32.17046015	-103.09423717	63.67	102.50	0.29	0.71
361	188.0	32.17046113	-103.09423987	50.90	97.93	0.29	0.72
362	188.5	32.17046210	-103.09424250	43.52	91.17	0.28	0.71
363	189.0	32.17046465	-103.09424405	39.57	82.81	0.28	0.70
364	189.6	32.17046720	-103.09424584	34.06	72.66	0.29	0.70
365	190.1	32.17046977	-103.09424947	31.33	66.76	0.32	0.70
366	190.6	32.17047241	-103.09425309	27.97	58.28	0.34	0.57
367	191.1	32.17047534	-103.09425669	25.78	54.22	0.33	0.60
368	191.7	32.17047821	-103.09425989	26.99	55.86	0.32	0.65
369	192.2	32.17048095	-103.09426212	29.26	56.41	0.30	0.67
370	192.7	32.17048322	-103.09426431	29.45	57.89	0.30	0.69
371	193.2	32.17048469	-103.09426645	29.18	58.67	0.31	0.72
372	193.7	32.17048633	-103.09426661	30.47	61.02	0.32	0.75
373	194.3	32.17048819	-103.09426443	29.22	59.88	0.32	0.76
374	194.8	32.17049067	-103.09426176	27.27	58.52	0.34	0.71
375	195.3	32.17049368	-103.09425865	27.19	58.28	0.33	0.73
376	195.8	32.17049543	-103.09425613	27.50	57.38	0.32	0.72
377	196.4	32.17049643	-103.09425396	27.34	56.72	0.32	0.70
378	196.9	32.17049677	-103.09425124	27.38	54.84	0.32	0.71
379	197.4	32.17049685	-103.09424831	27.46	57.31	0.31	0.74
380	197.9	32.17049560	-103.09424504	28.44	58.16	0.30	0.74
381	198.4	32.17049402	-103.09424168	28.09	58.05	0.29	0.73
382	199.0	32.17049144	-103.09423803	29.53	58.98	0.30	0.75
383	199.5	32.17048873	-103.09423433	29.77	59.65	0.30	0.74
384	200.0	32.17048683	-103.09423092	29.49	61.02	0.31	0.74
385	200.5	32.17048500	-103.09422761	30.98	61.37	0.30	0.70
386	201.1	32.17048408	-103.09422588	30.86	61.45	0.34	0.71
387	201.6	32.17048326	-103.09422435	30.31	62.85	0.44	0.73
388	202.1	32.17048307	-103.09422413	29.30	59.69	0.53	0.36

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389	202.6	32.17048305	-103.09422392	29.84	56.84	0.53	0.03
390	203.1	32.17048360	-103.09422376	30.66	57.81	0.59	0.40
391	203.7	32.17048321	-103.09422287	31.84	59.22	0.48	0.49
392	204.2	32.17048076	-103.09422037	33.44	61.29	0.34	0.52
393	204.7	32.17047841	-103.09421777	37.50	67.19	0.28	0.54
394	205.2	32.17047622	-103.09421503	46.48	80.35	0.26	0.58
395	205.8	32.17047389	-103.09421261	56.99	88.75	0.26	0.59
396	206.3	32.17047143	-103.09421055	67.73	91.37	0.25	0.58
397	206.8	32.17046860	-103.09420846	85.23	97.15	0.25	0.59
398	207.3	32.17046548	-103.09420635	100.20	103.67	0.25	0.61
399	207.8	32.17046265	-103.09420412	114.88	120.78	0.27	0.62
400	208.4	32.17046000	-103.09420184	129.22	143.75	0.29	0.65
401	208.9	32.17045715	-103.09420010	134.96	151.68	0.29	0.66
402	209.4	32.17045425	-103.09419856	131.37	149.34	0.27	0.66
403	209.9	32.17045184	-103.09419588	112.34	135.16	0.27	0.66
404	210.5	32.17044954	-103.09419294	94.34	120.78	0.30	0.70
405	211.0	32.17044600	-103.09419065	78.98	119.41	0.30	0.70
406	211.5	32.17044231	-103.09418842	67.15	119.61	0.31	0.64
407	212.0	32.17044014	-103.09418600	58.16	115.39	0.30	0.67
408	212.5	32.17043799	-103.09418363	56.21	111.84	0.29	0.69
409	213.1	32.17043506	-103.09418219	52.85	106.88	0.29	0.69
410	213.6	32.17043223	-103.09418047	49.73	100.00	0.29	0.66
411	214.1	32.17042991	-103.09417720	55.04	106.02	0.29	0.69
412	214.6	32.17042734	-103.09417391	64.92	115.08	0.30	0.71
413	215.2	32.17042404	-103.09417056	79.45	123.09	0.35	0.63
414	215.7	32.17042045	-103.09416736	95.39	117.70	0.30	0.83
415	216.2	32.17041624	-103.09416445	123.20	120.78	0.21	0.94
416	216.7	32.17041245	-103.09416158	133.36	137.81	0.32	0.70
417	217.2	32.17040928	-103.09415876	116.52	125.94	0.29	0.69
418	217.8	32.17040631	-103.09415629	93.59	102.77	0.26	0.63
419	218.3	32.17040351	-103.09415416	71.52	91.80	0.25	0.57
420	218.8	32.17040022	-103.09415097	58.95	86.88	0.25	0.48
421	219.3	32.17039656	-103.09414700	50.90	84.84	0.24	0.47
422	219.9	32.17039332	-103.09414322	41.76	79.81	0.25	0.50
423	220.4	32.17039028	-103.09413953	36.21	68.09	0.26	0.51
424	220.9	32.17038668	-103.09413562	33.40	60.00	0.25	0.51
425	221.4	32.17038290	-103.09413164	31.33	54.06	0.25	0.52
426	221.9	32.17037918	-103.09412788	28.87	49.96	0.25	0.50
427	222.5	32.17037546	-103.09412414	25.74	45.86	0.24	0.48
428	223.0	32.17037277	-103.09411913	24.41	43.28	0.25	0.50
429	223.5	32.17037019	-103.09411401	23.44	41.95	0.25	0.49
430	224.0	32.17036862	-103.09410911	23.20	40.82	0.24	0.49
431	224.6	32.17036701	-103.09410412	23.20	39.81	0.24	0.50
432	225.1	32.17036502	-103.09409840	22.42	38.95	0.23	0.46
433	225.6	32.17036309	-103.09409271	22.23	37.38	0.23	0.45
434	226.1	32.17036164	-103.09408779	18.40	34.96	0.22	0.45
435	226.6	32.17036121	-103.09408300	20.94	35.04	0.24	0.42
436	227.2	32.17036368	-103.09407886	23.44	36.80	0.25	0.42
437	227.7	32.17036676	-103.09407572	31.37	44.49	0.25	0.42
438	228.2	32.17037101	-103.09407445	48.24	59.45	0.25	0.44
439	228.7	32.17037575	-103.09407383	80.70	55.23	0.25	0.47
440	229.3	32.17038112	-103.09407403	145.70	68.63	0.23	0.46
441	229.8	32.17038585	-103.09407472	197.73	143.59	0.24	0.51
442	230.3	32.17039002	-103.09407587	220.59	200.78	0.25	0.56
443	230.8	32.17039282	-103.09407762	209.30	212.62	0.25	0.58
444	231.3	32.17039473	-103.09407977	212.50	214.30	0.25	0.56
445	231.9	32.17039724	-103.09408135	210.55	212.54	0.25	0.56
446	232.4	32.17040004	-103.09408268	199.26	203.63	0.24	0.52
447	232.9	32.17040281	-103.09408536	205.31	201.06	0.25	0.54
448	233.4	32.17040557	-103.09408845	198.95	191.95	0.26	0.54
449	234.0	32.17040861	-103.09409110	175.98	174.96	0.26	0.53
450	234.5	32.17041170	-103.09409369	177.85	172.62	0.25	0.53
451	235.0	32.17041568	-103.09409598	175.27	171.41	0.24	0.53
452	235.5	32.17041968	-103.09409829	156.56	169.22	0.24	0.52
453	236.0	32.17042279	-103.09410155	151.56	174.81	0.28	0.62

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454	236.6	32.17042587	-103.09410487	128.59	156.02	0.25	0.61
455	237.1	32.17042873	-103.09410860	108.24	140.04	0.26	0.58
456	237.6	32.17043156	-103.09411242	95.27	142.93	0.26	0.63
457	238.1	32.17043429	-103.09411664	77.19	139.26	0.26	0.62
458	238.7	32.17043687	-103.09412034	64.02	128.36	0.26	0.64
459	239.2	32.17043906	-103.09412270	53.05	112.38	0.29	0.69
460	239.7	32.17044127	-103.09412525	48.05	99.49	0.29	0.65
461	240.2	32.17044347	-103.09412808	46.17	93.13	0.29	0.63
462	240.7	32.17044545	-103.09413084	41.88	84.53	0.29	0.56
463	241.3	32.17044715	-103.09413352	43.48	78.44	0.39	0.63
464	241.8	32.17044997	-103.09413566	43.59	81.72	0.30	0.70
465	242.3	32.17045371	-103.09413734	45.51	85.12	0.27	0.67
466	242.8	32.17045702	-103.09413968	50.27	92.42	0.27	0.59
467	243.4	32.17046006	-103.09414241	55.94	100.08	0.27	0.62
468	243.9	32.17046234	-103.09414530	58.67	97.31	0.28	0.62
469	244.4	32.17046430	-103.09414824	70.16	92.27	0.26	0.61
470	244.9	32.17046725	-103.09415196	79.38	89.34	0.27	0.62
471	245.4	32.17047044	-103.09415587	73.48	93.32	0.26	0.61
472	246.0	32.17047315	-103.09415954	70.27	101.68	0.26	0.62
473	246.5	32.17047579	-103.09416318	66.29	109.45	0.25	0.63
474	247.0	32.17047809	-103.09416729	58.83	111.84	0.25	0.63
475	247.5	32.17048042	-103.09417138	55.27	108.83	0.25	0.67
476	248.1	32.17048341	-103.09417511	51.21	97.89	0.25	0.67
477	248.6	32.17048650	-103.09417882	46.64	88.28	0.25	0.66
478	249.1	32.17049007	-103.09418238	42.81	81.60	0.26	0.66
479	249.6	32.17049347	-103.09418577	37.31	73.44	0.25	0.62
480	250.1	32.17049627	-103.09418859	32.97	65.94	0.27	0.61
481	250.7	32.17049925	-103.09419045	33.32	66.21	0.26	0.66
482	251.2	32.17050263	-103.09419011	32.58	63.98	0.26	0.65
483	251.7	32.17050628	-103.09418933	31.64	61.41	0.25	0.65
484	252.2	32.17051036	-103.09418790	32.73	62.73	0.25	0.64
485	252.8	32.17051424	-103.09418526	33.09	62.42	0.24	0.59
486	253.3	32.17051791	-103.09418128	32.66	62.89	0.26	0.61
487	253.8	32.17052033	-103.09417676	30.55	60.08	0.26	0.59
488	254.3	32.17052181	-103.09417181	29.49	57.85	0.26	0.56
489	254.8	32.17052197	-103.09416604	29.26	58.36	0.26	0.57
490	255.4	32.17052140	-103.09415986	29.18	56.64	0.25	0.57
491	255.9	32.17052080	-103.09415555	27.77	55.39	0.26	0.56
492	256.4	32.17052019	-103.09415195	27.73	55.43	0.26	0.58
493	256.9	32.17051825	-103.09414828	27.66	54.96	0.26	0.56
494	257.5	32.17051601	-103.09414461	28.05	55.98	0.26	0.56
495	258.0	32.17051425	-103.09414023	28.98	56.33	0.25	0.57
496	258.5	32.17051252	-103.09413576	29.92	58.09	0.26	0.59
497	259.0	32.17051116	-103.09413161	29.38	58.32	0.25	0.58
498	259.5	32.17050975	-103.09412753	30.70	60.16	0.25	0.58
499	260.1	32.17050750	-103.09412420	31.64	60.66	0.23	0.55
500	260.6	32.17050534	-103.09412082	34.41	64.57	0.22	0.56
501	261.1	32.17050359	-103.09411712	36.76	69.41	0.25	0.59
502	261.6	32.17050186	-103.09411316	38.52	72.38	0.27	0.58
503	262.2	32.17050020	-103.09410839	40.86	76.17	0.27	0.56
504	262.7	32.17049862	-103.09410407	43.40	80.98	0.28	0.56
505	263.2	32.17049721	-103.09410066	43.32	81.80	0.28	0.56
506	263.7	32.17049646	-103.09409756	45.51	84.26	0.28	0.55
507	264.2	32.17049663	-103.09409490	49.73	88.48	0.28	0.55
508	264.8	32.17049596	-103.09409273	55.12	91.21	0.28	0.58
509	265.3	32.17049443	-103.09409104	58.87	92.27	0.28	0.56
510	265.8	32.17049395	-103.09408944	67.03	94.77	0.27	0.55
511	266.3	32.17049423	-103.09408788	81.06	99.06	0.27	0.57
512	266.9	32.17049259	-103.09408761	92.03	101.45	0.27	0.57
513	267.4	32.17048999	-103.09408797	105.35	112.31	0.25	0.58
514	267.9	32.17048873	-103.09408714	106.84	127.50	0.26	0.54
515	268.4	32.17048791	-103.09408591	119.45	149.53	0.25	0.56
516	268.9	32.17048624	-103.09408273	133.71	172.03	0.27	0.61
517	269.5	32.17048441	-103.09407918	127.27	177.27	0.25	0.68
518	270.0	32.17048409	-103.09407899	126.99	179.92	0.23	0.68

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519	270.5	32.17048390	-103.09407909	126.06	177.50	0.24	0.67
520	271.0	32.17048272	-103.09408003	114.06	163.91	0.25	0.64
521	271.6	32.17048164	-103.09408085	89.22	135.66	0.28	0.51
522	272.1	32.17048142	-103.09408043	77.23	124.06	0.28	0.49
523	272.6	32.17048119	-103.09407994	87.19	135.74	0.30	0.51
524	273.1	32.17048094	-103.09407919	104.41	151.99	0.30	0.57
525	273.6	32.17048075	-103.09407865	113.79	157.73	0.28	0.59
526	274.2	32.17048075	-103.09407868	117.70	160.00	0.27	0.60
527	274.7	32.17048053	-103.09407863	121.37	162.34	0.27	0.59
528	275.2	32.17047987	-103.09407843	124.41	164.30	0.26	0.61
529	275.7	32.17047930	-103.09407868	119.10	160.86	0.26	0.61
530	276.3	32.17047882	-103.09407952	102.19	147.03	0.26	0.51
531	276.8	32.17047678	-103.09408074	98.20	141.41	0.26	0.46
532	277.3	32.17047327	-103.09408230	92.62	134.69	0.22	0.43
533	277.8	32.17047031	-103.09408365	89.14	123.75	0.33	0.86
534	278.3	32.17046773	-103.09408484	81.48	113.28	0.35	1.03
535	278.9	32.17046573	-103.09408666	73.40	98.40	0.23	1.59
536	279.4	32.17046400	-103.09408876	69.10	106.84	0.23	0.92
537	279.9	32.17046219	-103.09408953	74.92	120.47	0.24	0.55
538	280.4	32.17046036	-103.09408991	75.47	117.38	0.23	0.48
539	281.0	32.17045968	-103.09408999	68.05	106.41	0.23	0.45
540	281.5	32.17045918	-103.09409001	66.29	102.77	0.24	0.45
541	282.0	32.17045885	-103.09408947	67.34	103.56	0.24	0.45
542	282.5	32.17045856	-103.09408887	70.08	105.63	0.24	0.47
543	283.0	32.17045907	-103.09408738	75.78	107.46	0.23	0.47
544	283.6	32.17045948	-103.09408557	76.29	103.36	0.21	0.44
545	284.1	32.17045910	-103.09408121	70.63	94.06	0.20	0.45
546	284.6	32.17045876	-103.09407661	54.10	85.27	0.24	0.35
547	285.1	32.17045856	-103.09407102	44.18	77.85	0.26	0.37
548	285.7	32.17045854	-103.09406581	36.99	69.10	0.24	0.38
549	286.2	32.17045896	-103.09406149	31.41	61.29	0.24	0.42
550	286.7	32.17046020	-103.09405796	28.59	54.53	0.24	0.38
551	287.2	32.17046283	-103.09405580	27.38	49.49	0.26	0.35
552	287.7	32.17046614	-103.09405410	29.77	50.51	0.27	0.38
553	288.3	32.17047027	-103.09405295	32.93	52.54	0.26	0.35
554	288.8	32.17047371	-103.09405371	37.46	57.31	0.27	0.38
555	289.3	32.17047655	-103.09405610	45.47	65.90	0.25	0.42
556	289.8	32.17048042	-103.09405782	54.26	72.81	0.25	0.43
557	290.4	32.17048491	-103.09405915	55.39	75.04	0.24	0.42
558	290.9	32.17048988	-103.09406105	54.69	74.22	0.25	0.42
559	291.4	32.17049506	-103.09406320	45.63	71.68	0.27	0.41
560	291.9	32.17049855	-103.09406688	39.77	71.88	0.29	0.42
561	292.4	32.17050161	-103.09407096	38.40	69.34	0.28	0.43
562	293.0	32.17050239	-103.09407526	40.16	70.12	0.26	0.47
563	293.5	32.17050285	-103.09407961	42.97	73.44	0.25	0.47
564	294.0	32.17050224	-103.09408497	45.04	78.83	0.27	0.49
565	294.5	32.17050158	-103.09409037	47.31	81.84	0.28	0.53
566	295.1	32.17050061	-103.09409548	49.30	84.88	0.27	0.55
567	295.6	32.17049947	-103.09410021	49.81	85.82	0.27	0.51
568	296.1	32.17049721	-103.09410254	54.26	89.22	0.29	0.53
569	296.6	32.17049507	-103.09410472	66.99	97.15	0.28	0.60
570	297.1	32.17049336	-103.09410636	75.27	103.48	0.27	0.56
571	297.7	32.17049149	-103.09410792	89.69	116.80	0.27	0.58
572	298.2	32.17048921	-103.09410931	103.28	129.53	0.28	0.61
573	298.7	32.17048686	-103.09411031	113.13	140.86	0.27	0.61
574	299.2	32.17048437	-103.09411069	115.08	144.02	0.28	0.63
575	299.8	32.17048144	-103.09411159	120.82	146.02	0.27	0.65
576	300.3	32.17047801	-103.09411306	107.46	138.16	0.26	0.61
577	300.8	32.17047456	-103.09411320	88.79	134.41	0.28	0.62
578	301.3	32.17047107	-103.09411230	76.84	128.95	0.28	0.61
579	301.8	32.17046741	-103.09411021	66.99	120.39	0.28	0.58
580	302.4	32.17046364	-103.09410745	62.11	117.27	0.29	0.59
581	302.9	32.17046042	-103.09410428	60.20	113.32	0.28	0.58
582	303.4	32.17045738	-103.09410093	57.77	108.28	0.27	0.54
583	303.9	32.17045601	-103.09409735	57.85	104.88	0.27	0.52

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584	304.5	32.17045502	-103.09409372	58.13	98.71	0.27	0.47
585	305.0	32.17045379	-103.09408863	57.34	88.01	0.26	0.42
586	305.5	32.17045253	-103.09408336	46.72	73.79	0.29	0.38
587	306.0	32.17045228	-103.09407930	40.63	69.88	0.30	0.42
588	306.5	32.17045215	-103.09407527	35.51	66.17	0.29	0.39
589	307.1	32.17045298	-103.09407127	30.98	61.21	0.29	0.37
590	307.6	32.17045382	-103.09406723	29.49	58.71	0.27	0.39
591	308.1	32.17045470	-103.09406299	26.99	53.32	0.26	0.39
592	308.6	32.17045610	-103.09405920	24.96	49.10	0.27	0.38
593	309.2	32.17045906	-103.09405686	26.37	48.16	0.26	0.35
594	309.7	32.17046256	-103.09405523	28.09	48.63	0.25	0.36
595	310.2	32.17046712	-103.09405506	29.92	49.34	0.26	0.35
596	310.7	32.17047155	-103.09405572	36.09	56.02	0.27	0.39
597	311.2	32.17047577	-103.09405754	46.68	67.38	0.26	0.40
598	311.8	32.17047989	-103.09405935	57.73	76.37	0.25	0.42
599	312.3	32.17048387	-103.09406113	62.50	85.43	0.25	0.45
600	312.8	32.17048822	-103.09406278	57.46	80.39	0.25	0.42
601	313.3	32.17049283	-103.09406435	49.88	74.45	0.27	0.40
602	313.9	32.17049700	-103.09406573	42.62	71.48	0.27	0.40
603	314.4	32.17050092	-103.09406701	36.76	67.34	0.29	0.43
604	314.9	32.17050319	-103.09406874	34.77	64.57	0.29	0.46
605	315.4	32.17050490	-103.09407061	33.09	61.84	0.27	0.43
606	315.9	32.17050549	-103.09407293	32.34	60.16	0.26	0.44
607	316.5	32.17050586	-103.09407533	33.09	62.31	0.25	0.46
608	317.0	32.17050671	-103.09407951	34.53	64.49	0.23	0.47
609	317.5	32.17050760	-103.09408384	36.25	66.60	0.23	0.50
610	318.0	32.17050594	-103.09408856	39.18	71.17	0.26	0.58
611	318.6	32.17050422	-103.09409330	42.38	75.39	0.25	0.61
612	319.1	32.17050186	-103.09409809	46.41	81.76	0.25	0.59
613	319.6	32.17049956	-103.09410266	51.91	89.88	0.27	0.59
614	320.1	32.17049768	-103.09410601	61.72	94.26	0.26	0.61
615	320.6	32.17049571	-103.09410929	74.96	99.30	0.27	0.63
616	321.2	32.17049357	-103.09411225	90.55	107.11	0.25	0.63
617	321.7	32.17049086	-103.09411480	100.63	114.92	0.26	0.60
618	322.2	32.17048705	-103.09411661	119.45	131.91	0.26	0.63
619	322.7	32.17048290	-103.09411818	114.96	138.01	0.27	0.63
620	323.3	32.17047829	-103.09411942	93.20	128.13	0.29	0.60
621	323.8	32.17047407	-103.09411960	80.94	129.69	0.31	0.64
622	324.3	32.17047020	-103.09411881	72.97	128.52	0.31	0.64
623	324.8	32.17046714	-103.09411656	70.08	126.37	0.29	0.66
624	325.3	32.17046460	-103.09411334	69.81	125.00	0.27	0.69
625	325.9	32.17046265	-103.09410963	66.99	121.68	0.27	0.67
626	326.4	32.17046095	-103.09410569	63.63	117.85	0.27	0.65
627	326.9	32.17045922	-103.09410163	63.05	115.51	0.26	0.64
628	327.4	32.17045749	-103.09409756	66.41	116.64	0.27	0.60
629	328.0	32.17045676	-103.09409312	66.29	111.41	0.28	0.54
630	328.5	32.17045620	-103.09408863	70.04	106.48	0.26	0.51
631	329.0	32.17045530	-103.09408301	58.13	86.56	0.27	0.41
632	329.5	32.17045438	-103.09407737	43.32	75.82	0.31	0.40
633	330.0	32.17045370	-103.09407345	36.33	68.67	0.31	0.41
634	330.6	32.17045327	-103.09406952	31.56	62.42	0.30	0.38
635	331.1	32.17045476	-103.09406552	29.26	58.75	0.29	0.39
636	331.6	32.17045636	-103.09406159	27.03	53.79	0.28	0.38
637	332.1	32.17045844	-103.09405792	22.70	47.89	0.27	0.38
638	332.7	32.17045955	-103.09405442	20.98	44.06	0.25	0.34
639	333.2	32.17045818	-103.09405128	19.73	39.49	0.23	0.24
640	333.7	32.17045605	-103.09404847	15.39	33.16	0.26	0.24
641	334.2	32.17045258	-103.09404619	13.95	30.90	0.27	0.31
642	334.7	32.17044893	-103.09404479	14.02	30.12	0.28	0.33
643	335.3	32.17044505	-103.09404447	19.02	30.35	0.27	0.40
644	335.8	32.17044104	-103.09404426	-57.81	-10.51	-1.37	-2.03
645	336.3	32.17043691	-103.09404413	-4.96	-40.39	1.24	-2.12
646	336.8	32.17043299	-103.09404410	19.84	-51.60	0.46	1.05
647	337.4	32.17042921	-103.09404415	17.46	19.96	0.27	0.46
648	337.9	32.17042546	-103.09404466	17.27	29.81	0.24	0.42

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649	338.4	32.17042170	-103.09404538	17.38	31.21	0.24	0.42
650	338.9	32.17041817	-103.09404679	18.05	32.07	0.23	0.44
651	339.4	32.17041469	-103.09404838	18.48	32.66	0.23	0.43
652	340.0	32.17041059	-103.09404995	20.63	35.08	0.23	0.42
653	340.5	32.17040640	-103.09405151	22.89	38.01	0.23	0.42
654	341.0	32.17040248	-103.09405389	30.55	45.39	0.21	0.41
655	341.5	32.17039870	-103.09405641	53.95	46.17	0.22	0.44
656	342.1	32.17039717	-103.09406119	130.20	55.43	0.21	0.43
657	342.6	32.17039578	-103.09406605	183.09	115.86	0.21	0.46
658	343.1	32.17039533	-103.09407140	211.13	167.97	0.23	0.50
659	343.6	32.17039487	-103.09407672	222.89	197.81	0.23	0.53
660	344.1	32.17039435	-103.09408192	222.77	211.80	0.23	0.53
661	344.7	32.17039390	-103.09408704	212.85	213.83	0.24	0.55
662	345.2	32.17039360	-103.09409188	184.18	185.16	0.23	0.54
663	345.7	32.17039316	-103.09409638	128.40	126.48	0.23	0.51
664	346.2	32.17039250	-103.09410029	78.87	76.48	0.24	0.50
665	346.8	32.17039156	-103.09410442	54.69	69.57	0.24	0.48
666	347.3	32.17039031	-103.09410879	38.24	68.01	0.22	0.46
667	347.8	32.17039007	-103.09411111	35.35	63.01	0.23	0.47
668	348.3	32.17039064	-103.09411182	37.97	65.98	0.23	0.47
669	348.8	32.17039223	-103.09411056	48.91	78.59	0.25	0.48
670	349.4	32.17039440	-103.09410822	65.39	92.81	0.26	0.53
671	349.9	32.17039588	-103.09410452	97.03	80.55	0.26	0.54
672	350.4	32.17039710	-103.09410031	150.86	84.96	0.25	0.53
673	350.9	32.17039815	-103.09409604	192.62	129.61	0.25	0.54
674	351.5	32.17039916	-103.09409174	209.06	168.05	0.26	0.57
675	352.0	32.17040068	-103.09408847	192.23	172.85	0.26	0.56
676	352.5	32.17040227	-103.09408531	182.27	166.64	0.26	0.57
677	353.0	32.17040411	-103.09408184	166.48	156.88	0.25	0.56
678	353.5	32.17040603	-103.09407834	149.77	130.04	0.25	0.52
679	354.1	32.17040887	-103.09407456	114.81	86.21	0.26	0.51
680	354.6	32.17041173	-103.09407144	81.37	74.41	0.25	0.46
681	355.1	32.17041467	-103.09407206	73.16	80.00	0.20	0.44
682	355.6	32.17041730	-103.09407343	81.80	66.91	0.26	0.50
683	356.2	32.17041898	-103.09407717	92.85	58.59	0.24	0.48
684	356.7	32.17042030	-103.09408096	114.49	72.66	0.26	0.48
685	357.2	32.17042089	-103.09408484	130.94	131.64	0.29	0.44
686	357.7	32.17042090	-103.09408754	113.32	152.58	0.27	0.42
687	358.2	32.17042006	-103.09408856	108.32	154.73	0.25	0.46
688	358.8	32.17042004	-103.09409012	110.04	147.77	0.25	0.48
689	359.3	32.17042087	-103.09409225	109.92	137.31	0.26	0.46
690	359.8	32.17042184	-103.09409540	128.20	146.64	0.24	0.47
691	360.3	32.17042289	-103.09409930	139.65	158.20	0.24	0.50
692	360.9	32.17042378	-103.09410269	130.59	157.34	0.24	0.55
693	361.4	32.17042459	-103.09410584	112.85	148.63	0.24	0.64
694	361.9	32.17042719	-103.09410684	100.27	131.25	0.23	0.61
695	362.4	32.17043041	-103.09410714	89.30	131.76	0.26	0.59
696	362.9	32.17043413	-103.09410551	85.12	139.69	0.29	0.65
697	363.5	32.17043796	-103.09410349	81.29	133.16	0.30	0.66
698	364.0	32.17044099	-103.09409984	71.60	117.66	0.27	0.51
699	364.5	32.17044395	-103.09409604	58.71	96.33	0.25	0.39
700	365.0	32.17044587	-103.09409138	57.97	89.10	0.24	0.40
701	365.6	32.17044780	-103.09408676	55.63	82.27	0.21	0.40
702	366.1	32.17044968	-103.09408278	49.57	76.06	0.21	0.36
703	366.6	32.17045137	-103.09407868	41.68	71.02	0.23	0.39
704	367.1	32.17045204	-103.09407482	37.15	67.58	0.22	0.36
705	367.6	32.17045286	-103.09407064	35.31	66.17	0.22	0.37
706	368.2	32.17045411	-103.09406584	32.85	61.41	0.23	0.40
707	368.7	32.17045556	-103.09406183	30.70	56.52	0.23	0.41
708	369.2	32.17045742	-103.09405932	28.24	54.14	0.22	0.44
709	369.7	32.17045849	-103.09405598	25.39	49.88	0.22	0.42
710	370.3	32.17045853	-103.09405155	23.63	45.47	0.19	0.33
711	370.8	32.17045836	-103.09404628	26.37	42.42	0.14	0.22
712	371.3	32.17045799	-103.09404021	20.04	31.56	0.18	0.41
713	371.8	32.17045758	-103.09403444	14.10	28.09	0.25	0.29

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714	372.3	32.17045715	-103.09402884	11.13	24.84	0.28	0.33
715	372.9	32.17045674	-103.09402323	10.70	23.67	0.27	0.33
716	373.4	32.17045634	-103.09401763	10.63	23.13	0.27	0.35
717	373.9	32.17045647	-103.09401283	9.96	22.73	0.28	0.37
718	374.4	32.17045677	-103.09400827	10.00	22.07	0.26	0.36
719	375.0	32.17045811	-103.09400482	10.66	22.77	0.25	0.37
720	375.5	32.17045963	-103.09400157	11.06	22.73	0.24	0.38
721	376.0	32.17046237	-103.09399968	11.25	23.09	0.24	0.35
722	376.5	32.17046521	-103.09399790	11.80	23.63	0.23	0.36
723	377.0	32.17046853	-103.09399662	11.68	24.02	0.23	0.36
724	377.6	32.17047196	-103.09399548	11.91	25.00	0.24	0.36
725	378.1	32.17047643	-103.09399546	12.42	25.78	0.24	0.35
726	378.6	32.17048080	-103.09399571	13.20	27.11	0.24	0.38
727	379.1	32.17048465	-103.09399703	13.83	28.13	0.24	0.39
728	379.7	32.17048845	-103.09399833	14.18	28.32	0.24	0.39
729	380.2	32.17049212	-103.09399957	14.57	29.73	0.24	0.36
730	380.7	32.17049573	-103.09400139	15.39	30.78	0.23	0.36
731	381.2	32.17049921	-103.09400423	18.24	31.64	0.21	0.30
732	381.7	32.17050168	-103.09400748	21.76	31.17	0.17	0.18
733	382.3	32.17050289	-103.09401121	35.51	34.38	-0.04	-0.32
734	382.8	32.17050377	-103.09401478	120.90	70.39	-1.46	-2.29
735	383.3	32.17050437	-103.09401821	259.88	108.01	-3.79	-2.78
736	383.8	32.17050587	-103.09402195	172.03	17.62	-2.67	2.53
737	384.4	32.17050792	-103.09402584	113.79	7.23	-1.49	2.38
738	384.9	32.17051086	-103.09402964	54.92	89.06	-0.38	-2.51
739	385.4	32.17051417	-103.09403338	30.82	65.31	0.04	-1.24
740	385.9	32.17051775	-103.09403671	22.77	45.82	0.18	0.01
741	386.4	32.17052140	-103.09403993	20.35	41.88	0.25	0.37
742	387.0	32.17052534	-103.09404125	21.33	40.59	0.23	0.44
743	387.5	32.17052931	-103.09404231	20.66	40.47	0.24	0.42
744	388.0	32.17053269	-103.09404444	20.86	40.70	0.25	0.41
745	388.5	32.17053605	-103.09404658	20.35	39.22	0.24	0.39
746	389.1	32.17053967	-103.09404776	19.02	38.16	0.25	0.41
747	389.6	32.17054308	-103.09404828	18.63	36.95	0.24	0.43
748	390.1	32.17054512	-103.09404430	19.18	38.32	0.24	0.43
749	390.6	32.17054696	-103.09404016	18.98	38.95	0.24	0.44
750	391.1	32.17054809	-103.09403541	19.41	39.22	0.24	0.44
751	391.7	32.17054939	-103.09403073	19.81	39.02	0.23	0.41
752	392.2	32.17055101	-103.09402641	19.73	38.59	0.24	0.41
753	392.7	32.17055204	-103.09402189	19.65	38.98	0.23	0.43
754	393.2	32.17055211	-103.09401716	19.81	38.16	0.22	0.41
755	393.8	32.17055146	-103.09401299	19.45	38.32	0.23	0.42
756	394.3	32.17055001	-103.09400942	19.10	37.50	0.22	0.42
757	394.8	32.17054732	-103.09400650	19.61	37.85	0.22	0.40
758	395.3	32.17054362	-103.09400414	20.00	38.83	0.23	0.40
759	395.8	32.17053954	-103.09400287	20.16	38.79	0.23	0.42
760	396.4	32.17053526	-103.09400220	19.69	38.36	0.22	0.39
761	396.9	32.17053074	-103.09400130	20.70	39.14	0.22	0.39
762	397.4	32.17052611	-103.09400030	20.82	38.95	0.22	0.39
763	397.9	32.17052179	-103.09399905	19.84	37.66	0.22	0.38
764	398.5	32.17051752	-103.09399774	18.36	35.70	0.22	0.37
765	399.0	32.17051299	-103.09399612	17.89	34.92	0.22	0.39
766	399.5	32.17050843	-103.09399447	17.31	34.65	0.23	0.38
767	400.0	32.17050423	-103.09399323	16.64	33.40	0.23	0.39
768	400.5	32.17050009	-103.09399194	16.06	31.80	0.23	0.37
769	401.1	32.17049653	-103.09398993	16.06	31.76	0.23	0.38
770	401.6	32.17049296	-103.09398768	15.94	31.80	0.23	0.38
771	402.1	32.17048950	-103.09398420	14.65	30.51	0.23	0.35
772	402.6	32.17048658	-103.09398051	14.02	29.18	0.25	0.35
773	403.2	32.17048545	-103.09397620	14.45	28.56	0.23	0.37
774	403.7	32.17048565	-103.09397196	14.18	28.16	0.22	0.34
775	404.2	32.17048869	-103.09396786	14.18	28.44	0.23	0.36
776	404.7	32.17049212	-103.09396458	14.69	29.30	0.24	0.35
777	405.2	32.17049611	-103.09396248	14.34	28.83	0.27	0.37
778	405.8	32.17050059	-103.09396182	14.45	28.95	0.27	0.36

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779	406.3	32.17050558	-103.09396264	14.26	29.06	0.24	0.33
780	406.8	32.17051022	-103.09396489	14.61	29.02	0.24	0.35
781	407.3	32.17051457	-103.09396819	15.20	30.00	0.24	0.35
782	407.9	32.17051784	-103.09397218	15.20	30.82	0.25	0.35
783	408.4	32.17052057	-103.09397651	14.96	31.33	0.26	0.35
784	408.9	32.17052210	-103.09398150	16.17	32.42	0.26	0.36
785	409.4	32.17052324	-103.09398669	17.93	35.12	0.26	0.39
786	409.9	32.17052424	-103.09399214	18.59	36.37	0.24	0.40
787	410.5	32.17052522	-103.09399765	20.08	36.60	0.23	0.38
788	411.0	32.17052463	-103.09400280	19.81	37.11	0.25	0.39
789	411.5	32.17052390	-103.09400792	19.34	37.31	0.26	0.36
790	412.0	32.17052129	-103.09401072	20.47	36.48	0.20	0.32
791	412.6	32.17051867	-103.09401361	19.30	34.53	0.21	0.29
792	413.1	32.17051646	-103.09401788	21.41	35.47	0.16	0.14
793	413.6	32.17051433	-103.09402226	33.09	44.22	0.00	-0.46
794	414.1	32.17051280	-103.09402676	45.08	52.03	-0.21	-1.00
795	414.6	32.17051130	-103.09403120	53.16	54.14	-0.35	-1.18
796	415.2	32.17051000	-103.09403525	48.44	51.06	-0.26	-1.03
797	415.7	32.17050873	-103.09403917	39.18	42.11	-0.12	-0.50
798	416.2	32.17050754	-103.09404286	29.69	35.16	0.04	0.49
799	416.7	32.17050582	-103.09404691	24.41	37.85	0.07	1.47
800	417.3	32.17050339	-103.09405140	24.57	41.80	0.17	0.79
801	417.8	32.17050050	-103.09405453	25.98	47.31	0.22	0.38
802	418.3	32.17049718	-103.09405635	28.44	50.63	0.24	0.35
803	418.8	32.17049538	-103.09405788	34.41	55.98	0.24	0.39
804	419.3	32.17049460	-103.09405922	40.31	60.66	0.23	0.43
805	419.9	32.17049365	-103.09406010	51.17	67.07	0.23	0.47
806	420.4	32.17049261	-103.09406078	67.23	73.71	0.24	0.52
807	420.9	32.17049221	-103.09406132	76.25	77.34	0.24	0.52
808	421.4	32.17049200	-103.09406182	79.65	78.59	0.26	0.57
809	422.0	32.17049211	-103.09406239	81.99	79.96	0.27	0.57
810	422.5	32.17049228	-103.09406298	83.36	80.35	0.28	0.55
811	423.0	32.17049251	-103.09406460	83.63	82.15	0.28	0.53
812	423.5	32.17049273	-103.09406626	87.89	85.55	0.28	0.55
813	424.0	32.17049223	-103.09406670	97.73	90.74	0.29	0.57
814	424.6	32.17049179	-103.09406706	105.74	94.53	0.29	0.61
815	425.1	32.17049186	-103.09406680	109.18	94.65	0.29	0.61
816	425.6	32.17049210	-103.09406663	105.63	93.32	0.29	0.59
817	426.1	32.17049307	-103.09406679	81.80	83.59	0.29	0.52
818	426.7	32.17049276	-103.09406697	63.83	73.24	0.29	0.46
819	427.2	32.17048907	-103.09406722	70.04	74.53	0.29	0.49
820	427.7	32.17048573	-103.09406713	84.45	84.84	0.28	0.50
821	428.2	32.17048300	-103.09406645	85.82	100.08	0.26	0.52
822	428.7	32.17048134	-103.09406633	100.08	111.45	0.26	0.55
823	429.3	32.17048100	-103.09406689	109.65	116.48	0.27	0.56
824	429.8	32.17048024	-103.09406725	116.76	124.30	0.28	0.59
825	430.3	32.17047911	-103.09406742	124.06	126.64	0.28	0.62
826	430.8	32.17047872	-103.09406745	125.20	127.11	0.28	0.61
827	431.4	32.17047879	-103.09406737	125.16	126.21	0.28	0.59
828	431.9	32.17047926	-103.09406744	125.59	125.51	0.29	0.60
829	432.4	32.17047990	-103.09406756	117.93	121.95	0.28	0.56
830	432.9	32.17048005	-103.09407004	96.95	115.00	0.28	0.48
831	433.4	32.17048007	-103.09407319	100.98	125.16	0.29	0.45
832	434.0	32.17048014	-103.09407574	97.50	133.36	0.30	0.47
833	434.5	32.17048021	-103.09407822	96.64	145.74	0.30	0.53
834	435.0	32.17047906	-103.09408030	110.59	161.33	0.29	0.59
835	435.5	32.17047791	-103.09408228	116.68	162.62	0.30	0.61
836	436.1	32.17047805	-103.09408227	119.96	164.18	0.30	0.61
837	436.6	32.17047824	-103.09408219	123.28	166.37	0.29	0.62
838	437.1	32.17047875	-103.09408167	126.21	168.01	0.29	0.63
839	437.6	32.17047955	-103.09408166	124.53	166.88	0.28	0.62
840	438.1	32.17048133	-103.09408347	127.23	165.35	0.27	0.61
841	438.7	32.17048365	-103.09408539	137.70	164.65	0.28	0.61
842	439.2	32.17048704	-103.09408745	135.20	157.07	0.28	0.64
843	439.7	32.17048952	-103.09408979	119.30	144.81	0.27	0.66

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844	440.2	32.17049046	-103.09409255	112.70	138.59	0.28	0.67
845	440.8	32.17049086	-103.09409501	114.53	145.35	0.27	0.69
846	441.3	32.17049064	-103.09409714	114.26	147.11	0.26	0.67
847	441.8	32.17049056	-103.09409831	123.75	156.95	0.26	0.67
848	442.3	32.17049061	-103.09409871	127.97	161.64	0.27	0.70
849	442.8	32.17049049	-103.09409906	128.83	161.02	0.28	0.71
850	443.4	32.17049029	-103.09409938	129.18	160.27	0.28	0.69
851	443.9	32.17049084	-103.09410115	129.73	162.11	0.28	0.70
852	444.4	32.17049168	-103.09410347	115.43	153.32	0.25	0.65
853	444.9	32.17049208	-103.09410738	105.94	140.66	0.25	0.65
854	445.5	32.17049238	-103.09411164	110.23	132.07	0.25	0.64
855	446.0	32.17049197	-103.09411627	100.23	122.15	0.26	0.62
856	446.5	32.17049147	-103.09412094	90.78	112.11	0.27	0.63
857	447.0	32.17048986	-103.09412513	81.60	109.61	0.26	0.58
858	447.5	32.17048808	-103.09412914	70.04	100.00	0.30	0.49
859	448.1	32.17048460	-103.09413106	68.13	99.49	0.31	0.53
860	448.6	32.17048133	-103.09413329	80.70	109.88	0.29	0.60
861	449.1	32.17047924	-103.09413724	83.83	113.09	0.29	0.62
862	449.6	32.17047730	-103.09414084	80.47	111.13	0.28	0.63
863	450.2	32.17047582	-103.09414331	83.56	112.66	0.28	0.65
864	450.7	32.17047479	-103.09414616	89.41	114.92	0.27	0.66
865	451.2	32.17047472	-103.09414980	85.70	111.25	0.26	0.64
866	451.7	32.17047400	-103.09415332	83.01	110.43	0.26	0.64
867	452.2	32.17047229	-103.09415665	84.81	109.10	0.26	0.66
868	452.8	32.17047064	-103.09416007	87.19	110.94	0.26	0.64
869	453.3	32.17046905	-103.09416358	90.98	116.25	0.27	0.66
870	453.8	32.17046834	-103.09416642	99.38	120.20	0.27	0.67
871	454.3	32.17046829	-103.09416876	104.10	122.23	0.27	0.68
872	454.9	32.17046784	-103.09416926	108.20	125.86	0.28	0.72
873	455.4	32.17046720	-103.09416882	114.81	130.12	0.28	0.73
874	455.9	32.17046658	-103.09417093	116.64	130.43	0.28	0.72
875	456.4	32.17046597	-103.09417388	122.15	130.12	0.26	0.66
876	456.9	32.17046476	-103.09417569	120.55	132.97	0.25	0.66
877	457.5	32.17046342	-103.09417727	128.79	142.97	0.07	0.56
878	458.0	32.17046279	-103.09418051	134.77	146.80	0.04	0.55
879	458.5	32.17046222	-103.09418391	133.83	149.57	0.04	0.57
880	459.0	32.17046200	-103.09418505	139.30	156.72	0.07	0.61
881	459.6	32.17046178	-103.09418621	140.12	158.28	0.08	0.62
882	460.1	32.17046151	-103.09418824	143.71	158.44	0.08	0.61
883	460.6	32.17046162	-103.09419027	152.97	161.95	0.09	0.60
884	461.1	32.17046337	-103.09419204	149.06	159.96	0.09	0.59
885	461.6	32.17046490	-103.09419420	131.02	148.36	0.08	0.55
886	462.2	32.17046565	-103.09419745	141.02	142.58	0.10	0.57
887	462.7	32.17046665	-103.09420089	152.62	140.12	0.11	0.58
888	463.2	32.17046817	-103.09420472	148.79	140.51	0.11	0.59
889	463.7	32.17046930	-103.09420841	140.90	134.88	0.13	0.62
890	464.3	32.17046990	-103.09421193	134.88	130.63	0.12	0.62
891	464.8	32.17046939	-103.09421499	125.31	124.02	0.10	0.57
892	465.3	32.17046781	-103.09421761	129.57	114.14	0.12	0.60
893	465.8	32.17046576	-103.09421919	126.17	119.92	0.14	0.61
894	466.3	32.17046337	-103.09422008	127.77	136.02	0.12	0.58
895	466.9	32.17046180	-103.09422003	140.08	163.95	0.10	0.63
896	467.4	32.17046063	-103.09421954	149.22	176.29	0.10	0.65
897	467.9	32.17046023	-103.09422019	160.39	181.95	0.10	0.66
898	468.4	32.17046005	-103.09422118	171.02	184.41	0.10	0.67
899	468.9	32.17045914	-103.09422511	170.86	181.13	0.12	0.64
900	469.5	32.17045809	-103.09422959	140.70	161.13	0.12	0.62
901	470.0	32.17045673	-103.09423085	142.27	153.79	0.12	0.64
902	470.5	32.17045531	-103.09423192	145.94	150.12	0.14	0.64
903	471.0	32.17045207	-103.09423436	131.52	133.16	0.15	0.59
904	471.6	32.17044896	-103.09423651	116.64	115.59	0.16	0.55
905	472.1	32.17044700	-103.09423613	125.04	118.20	0.14	0.58
906	472.6	32.17044519	-103.09423558	116.17	125.63	0.12	0.58
907	473.1	32.17044410	-103.09423435	111.41	132.38	0.11	0.57
908	473.7	32.17044300	-103.09423370	110.66	137.15	0.11	0.59

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909	474.2	32.17044192	-103.09423454	112.38	136.80	0.10	0.61
910	474.7	32.17044037	-103.09423603	113.20	134.57	0.11	0.58
911	475.2	32.17043800	-103.09423865	112.66	132.97	0.12	0.58
912	475.7	32.17043579	-103.09424206	101.17	113.36	0.14	0.61
913	476.3	32.17043377	-103.09424646	85.66	102.27	0.15	0.60
914	476.8	32.17043116	-103.09424940	83.98	105.20	0.15	0.62
915	477.3	32.17042801	-103.09425104	88.67	104.57	0.13	0.61
916	477.8	32.17042528	-103.09425086	99.34	95.55	0.11	0.58
917	478.3	32.17042281	-103.09424952	118.71	99.02	0.11	0.58
918	478.9	32.17041972	-103.09424948	131.52	115.59	0.11	0.61
919	479.4	32.17041636	-103.09425001	138.20	125.63	0.10	0.59
920	479.9	32.17041280	-103.09424987	153.83	137.85	0.11	0.59
921	480.4	32.17040918	-103.09424955	168.83	153.32	0.11	0.62
922	481.0	32.17040545	-103.09424869	172.77	167.42	0.09	0.57
923	481.5	32.17040171	-103.09424774	184.34	196.09	0.10	0.61
924	482.0	32.17039787	-103.09424931	182.81	202.34	0.09	0.58
925	482.5	32.17039399	-103.09425105	161.52	176.25	0.10	0.58
926	483.0	32.17038958	-103.09425406	157.31	145.98	0.14	0.60
927	483.6	32.17038529	-103.09425702	139.10	135.82	0.11	0.57
928	484.1	32.17038193	-103.09425959	117.93	120.16	0.11	0.53
929	484.6	32.17037862	-103.09426251	130.31	111.09	0.10	0.53
930	485.1	32.17037554	-103.09426670	135.39	108.01	0.09	0.51
931	485.7	32.17037251	-103.09427110	112.54	96.68	0.12	0.52
932	486.2	32.17036973	-103.09427578	99.06	104.69	0.10	0.50
933	486.7	32.17036639	-103.09427922	88.87	117.34	0.11	0.48
934	487.2	32.17036217	-103.09428051	80.43	106.41	0.13	0.49
935	487.8	32.17035788	-103.09428099	82.81	82.50	0.11	0.46
936	488.3	32.17035350	-103.09428055	78.91	80.27	0.11	0.46
937	488.8	32.17034886	-103.09428015	90.59	112.89	0.11	0.46
938	489.3	32.17034403	-103.09427980	89.10	109.18	0.11	0.44
939	489.8	32.17033922	-103.09427895	107.19	84.26	0.11	0.41
940	490.4	32.17033444	-103.09427783	115.23	88.40	0.09	0.42
941	490.9	32.17033105	-103.09427488	114.81	95.78	0.11	0.45
942	491.4	32.17032821	-103.09427122	120.08	85.51	0.10	0.47
943	491.9	32.17032692	-103.09426722	123.48	77.54	0.08	0.46
944	492.4	32.17032601	-103.09426313	130.08	73.87	0.14	0.52
945	493.0	32.17032791	-103.09425842	157.42	82.31	0.13	0.54
946	493.5	32.17033015	-103.09425363	163.87	104.77	0.10	0.51
947	494.0	32.17033333	-103.09425150	183.16	120.43	0.14	0.54
948	494.5	32.17033639	-103.09424960	184.34	133.28	0.13	0.54
949	495.1	32.17033716	-103.09424952	183.95	130.27	0.13	0.53
950	495.6	32.17033780	-103.09424945	192.62	120.86	0.15	0.51
951	496.1	32.17033760	-103.09424948	187.93	125.94	0.13	0.49
952	496.6	32.17033752	-103.09424949	186.02	130.39	0.13	0.50
953	497.1	32.17033780	-103.09424941	186.91	124.77	0.13	0.50
954	497.7	32.17033800	-103.09424945	187.42	123.40	0.13	0.50
955	498.2	32.17033807	-103.09424974	185.63	125.35	0.15	0.53
956	498.7	32.17033825	-103.09424958	192.93	125.86	0.16	0.53
957	499.2	32.17033862	-103.09424874	194.34	129.96	0.13	0.51
958	499.8	32.17033944	-103.09424884	187.66	132.62	0.13	0.52
959	500.3	32.17034075	-103.09424994	199.02	129.41	0.14	0.49
960	500.8	32.17034342	-103.09425013	211.56	145.27	0.11	0.47
961	501.3	32.17034712	-103.09424963	211.48	168.79	0.10	0.48
962	501.8	32.17035030	-103.09424899	208.09	173.56	0.07	0.50
963	502.4	32.17035322	-103.09424829	212.11	177.50	0.08	0.54
964	502.9	32.17035564	-103.09424517	190.90	170.70	0.07	0.51
965	503.4	32.17035789	-103.09424122	166.02	163.01	0.06	0.46
966	503.9	32.17036058	-103.09423755	170.78	191.41	0.09	0.48
967	504.5	32.17036338	-103.09423393	165.12	205.51	0.10	0.53
968	505.0	32.17036633	-103.09423177	184.02	218.59	0.08	0.55
969	505.5	32.17036931	-103.09422974	211.95	239.26	0.09	0.56
970	506.0	32.17037151	-103.09422663	224.73	235.47	0.09	0.59
971	506.6	32.17037369	-103.09422357	236.41	235.70	0.09	0.61
972	507.1	32.17037593	-103.09422130	263.56	269.61	0.11	0.67
973	507.6	32.17037801	-103.09421896	272.62	291.21	0.11	0.69

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974	508.1	32.17037907	-103.09421670	255.20	292.15	0.10	0.67
975	508.6	32.17038034	-103.09421462	256.37	298.75	0.10	0.69
976	509.2	32.17038208	-103.09421323	281.29	308.05	0.12	0.73
977	509.7	32.17038344	-103.09421160	281.37	308.75	0.12	0.75
978	510.2	32.17038404	-103.09420949	263.01	294.30	0.11	0.72
979	510.7	32.17038453	-103.09420779	265.16	291.60	0.12	0.74
980	511.3	32.17038486	-103.09420663	271.48	294.81	0.13	0.76
981	511.8	32.17038512	-103.09420598	266.99	291.09	0.15	0.76
982	512.3	32.17038531	-103.09420582	275.63	288.28	0.15	0.76
983	512.8	32.17038557	-103.09420630	273.09	282.77	0.15	0.72
984	513.3	32.17038589	-103.09420722	286.48	285.66	0.13	0.73
985	513.9	32.17038689	-103.09420629	270.39	280.86	0.10	0.69
986	514.4	32.17038822	-103.09420447	243.56	276.56	0.07	0.65
987	514.9	32.17039024	-103.09420299	243.83	281.95	0.07	0.67
988	515.4	32.17039247	-103.09420164	229.69	274.88	0.07	0.64
989	515.9	32.17039531	-103.09420308	208.75	260.20	0.07	0.62
990	516.5	32.17039828	-103.09420505	235.20	278.13	0.09	0.70
991	517.0	32.17040073	-103.09420371	237.62	276.06	0.08	0.69
992	517.5	32.17040316	-103.09420215	211.68	252.31	0.09	0.63
993	518.0	32.17040775	-103.09420249	186.13	224.84	0.13	0.62
994	518.6	32.17041226	-103.09420285	161.29	193.40	0.15	0.65
995	519.1	32.17041600	-103.09420346	143.63	164.88	0.15	0.69
996	519.6	32.17041981	-103.09420397	135.35	144.96	0.18	0.71
997	520.1	32.17042394	-103.09420406	120.16	132.58	0.13	0.62
998	520.6	32.17042797	-103.09420414	107.58	125.86	0.12	0.64
999	521.2	32.17043173	-103.09420419	126.52	124.84	0.11	0.66
1000	521.7	32.17043537	-103.09420406	133.13	136.06	0.11	0.64
1001	522.2	32.17043884	-103.09420360	145.82	149.49	0.11	0.62
1002	522.7	32.17044229	-103.09420264	148.13	156.72	0.13	0.62
1003	523.3	32.17044568	-103.09420107	129.38	154.61	0.14	0.60
1004	523.8	32.17044889	-103.09419930	148.16	165.16	0.13	0.61
1005	524.3	32.17045192	-103.09419737	152.11	165.43	0.12	0.59
1006	524.8	32.17045459	-103.09419683	145.31	158.79	0.12	0.56
1007	525.3	32.17045703	-103.09419719	149.61	160.31	0.13	0.57
1008	525.9	32.17045994	-103.09419885	152.66	163.75	0.12	0.58
1009	526.4	32.17046304	-103.09420107	153.48	161.29	0.12	0.55
1010	526.9	32.17046450	-103.09420385	151.84	158.91	0.13	0.59
1011	527.4	32.17046549	-103.09420680	145.23	157.07	0.12	0.63
1012	528.0	32.17046550	-103.09421032	138.20	149.92	0.10	0.59
1013	528.5	32.17046536	-103.09421392	143.36	145.47	0.09	0.58
1014	529.0	32.17046529	-103.09421774	134.73	145.51	0.09	0.58
1015	529.5	32.17046520	-103.09422155	112.11	136.88	0.10	0.55
1016	530.0	32.17046462	-103.09422505	126.52	142.50	0.09	0.55
1017	530.6	32.17046406	-103.09422826	121.33	140.82	0.10	0.52
1018	531.1	32.17046373	-103.09422944	101.91	127.23	0.12	0.53
1019	531.6	32.17046352	-103.09423096	89.69	114.92	0.15	0.53
1020	532.1	32.17046372	-103.09423373	73.05	101.99	0.21	0.58
1021	532.7	32.17046400	-103.09423573	69.38	94.65	0.20	0.57
1022	533.2	32.17046442	-103.09423586	78.87	89.96	0.12	0.54
1023	533.7	32.17046457	-103.09423598	82.54	86.64	0.01	0.51
1024	534.2	32.17046425	-103.09423605	84.38	84.65	-0.03	0.51
1025	534.7	32.17046404	-103.09423603	87.23	84.06	-0.03	0.49
1026	535.3	32.17046395	-103.09423592	88.16	84.96	-0.03	0.50
1027	535.8	32.17046390	-103.09423591	89.02	84.96	-0.03	0.49
1028	536.3	32.17046388	-103.09423599	88.91	84.30	-0.03	0.52
1029	536.8	32.17046386	-103.09423598	88.91	84.30	-0.03	0.51
1030	537.4	32.17046382	-103.09423591	88.79	84.30	-0.03	0.52
1031	537.9	32.17046395	-103.09423583	88.95	83.95	-0.03	0.52
1032	538.4	32.17046415	-103.09423576	89.57	84.34	-0.03	0.51
1033	538.9	32.17046417	-103.09423573	90.04	85.23	-0.03	0.51
1034	539.4	32.17046415	-103.09423571	90.47	85.04	-0.03	0.52
1035	540.0	32.17046428	-103.09423545	89.96	85.55	-0.03	0.53
1036	540.5	32.17046443	-103.09423515	89.84	84.96	-0.03	0.50
1037	541.0	32.17046410	-103.09423382	92.19	87.07	-0.02	0.49
1038	541.5	32.17046379	-103.09423258	97.85	93.79	-0.03	0.49

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1039	542.1	32.17046422	-103.09423379	94.73	97.15	-0.02	0.46
1040	542.6	32.17046451	-103.09423495	91.84	93.05	-0.01	0.49
1041	543.1	32.17046387	-103.09423575	86.76	89.06	-0.03	0.50
1042	543.6	32.17046348	-103.09423635	83.67	86.45	-0.03	0.49
1043	544.1	32.17046396	-103.09423624	83.13	85.78	-0.04	0.51
1044	544.7	32.17046438	-103.09423602	83.52	85.66	-0.03	0.52
1045	545.2	32.17046467	-103.09423554	85.20	87.50	-0.03	0.52
1046	545.7	32.17046456	-103.09423496	85.39	87.93	-0.02	0.52
1047	546.2	32.17046383	-103.09423424	79.73	85.12	0.02	0.53
1048	546.8	32.17046336	-103.09423131	77.11	86.41	0.04	0.49
1049	547.3	32.17046319	-103.09422606	71.06	89.69	0.05	0.46
1050	547.8	32.17046392	-103.09422085	69.06	95.51	0.07	0.50
1051	548.3	32.17046535	-103.09421565	77.70	102.03	0.07	0.53
1052	548.8	32.17046732	-103.09421035	72.70	98.79	0.08	0.50
1053	549.4	32.17046957	-103.09420499	62.50	93.63	0.09	0.48
1054	549.9	32.17047213	-103.09420006	55.23	89.77	0.08	0.45
1055	550.4	32.17047479	-103.09419527	48.48	84.22	0.11	0.47
1056	550.9	32.17047753	-103.09419060	46.13	81.64	0.10	0.48
1057	551.5	32.17048028	-103.09418596	46.56	78.91	0.08	0.47
1058	552.0	32.17048143	-103.09418043	46.64	78.32	0.09	0.48
1059	552.5	32.17048242	-103.09417482	49.18	83.52	0.09	0.51
1060	553.0	32.17048159	-103.09417006	50.55	86.02	0.10	0.50
1061	553.5	32.17048075	-103.09416533	52.38	89.41	0.10	0.49
1062	554.1	32.17048028	-103.09416043	52.15	89.92	0.09	0.49
1063	554.6	32.17048007	-103.09415550	50.55	86.91	0.09	0.46
1064	555.1	32.17048102	-103.09415096	52.15	89.49	0.10	0.47
1065	555.6	32.17048217	-103.09414630	55.20	92.81	0.09	0.46
1066	556.2	32.17048383	-103.09414154	54.06	94.92	0.10	0.48
1067	556.7	32.17048561	-103.09413695	55.08	96.88	0.10	0.49
1068	557.2	32.17048764	-103.09413265	53.24	93.13	0.07	0.48
1069	557.7	32.17049017	-103.09412920	49.41	87.11	0.06	0.46
1070	558.2	32.17049341	-103.09412686	46.72	83.98	0.06	0.44
1071	558.8	32.17049710	-103.09412405	43.79	77.77	0.05	0.44
1072	559.3	32.17050125	-103.09412077	40.51	71.29	0.05	0.43
1073	559.8	32.17050398	-103.09411696	38.01	66.76	0.05	0.42
1074	560.3	32.17050575	-103.09411277	36.52	63.48	0.05	0.41
1075	560.9	32.17050773	-103.09410903	35.86	62.46	0.05	0.43
1076	561.4	32.17050980	-103.09410549	35.08	60.23	0.06	0.42
1077	561.9	32.17051196	-103.09410278	32.73	55.86	0.06	0.41
1078	562.4	32.17051413	-103.09410032	31.68	53.36	0.05	0.39
1079	562.9	32.17051512	-103.09409880	34.14	56.37	0.05	0.40
1080	563.5	32.17051588	-103.09409744	35.31	58.63	0.06	0.40
1081	564.0	32.17051579	-103.09409724	36.37	59.77	0.04	0.38
1082	564.5	32.17051565	-103.09409715	36.48	59.53	0.01	0.36
1083	565.0	32.17051574	-103.09409834	36.45	59.18	0.02	0.40
1084	565.6	32.17051566	-103.09409960	35.00	56.84	0.03	0.35
1085	566.1	32.17051404	-103.09410154	35.04	57.42	0.03	0.35
1086	566.6	32.17051253	-103.09410382	36.60	59.81	0.03	0.37
1087	567.1	32.17051150	-103.09410760	37.31	62.77	0.07	0.44
1088	567.6	32.17051057	-103.09411139	37.66	64.41	0.09	0.48
1089	568.2	32.17050987	-103.09411518	39.41	67.70	0.07	0.48
1090	568.7	32.17050935	-103.09411929	41.29	67.70	0.04	0.46
1091	569.2	32.17050916	-103.09412396	39.38	65.47	0.07	0.46
1092	569.7	32.17050908	-103.09412887	38.20	66.21	0.06	0.46
1093	570.3	32.17050915	-103.09413409	37.19	63.75	0.06	0.44
1094	570.8	32.17050863	-103.09413935	36.80	63.67	0.09	0.48
1095	571.3	32.17050760	-103.09414459	38.48	65.66	0.08	0.48
1096	571.8	32.17050682	-103.09414948	38.83	65.90	0.07	0.48
1097	572.3	32.17050619	-103.09415414	39.49	67.62	0.06	0.49
1098	572.9	32.17050693	-103.09415894	39.26	67.07	0.04	0.47
1099	573.4	32.17050824	-103.09416377	39.26	67.27	0.06	0.48
1100	573.9	32.17051174	-103.09416740	38.48	65.47	0.06	0.49
1101	574.4	32.17051585	-103.09417070	37.15	63.36	0.06	0.46
1102	575.0	32.17051979	-103.09417479	37.77	63.83	0.07	0.47
1103	575.5	32.17052371	-103.09417900	39.06	64.84	0.06	0.48

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1104	576.0	32.17052793	-103.09418178	39.34	65.20	0.07	0.54
1105	576.5	32.17053222	-103.09418444	39.77	66.33	0.06	0.54
1106	577.0	32.17053738	-103.09418569	39.38	65.27	0.05	0.49
1107	577.6	32.17054248	-103.09418684	40.74	66.60	0.06	0.51
1108	578.1	32.17054699	-103.09418726	40.70	66.84	0.07	0.48
1109	578.6	32.17055152	-103.09418775	41.09	67.81	0.08	0.47
1110	579.1	32.17055613	-103.09418850	42.07	69.88	0.08	0.49
1111	579.7	32.17056078	-103.09418929	43.05	70.59	0.08	0.49
1112	580.2	32.17056520	-103.09419016	43.40	72.58	0.14	0.52
1113	580.7	32.17056959	-103.09419102	43.20	72.42	0.10	0.53
1114	581.2	32.17057384	-103.09419188	43.59	73.05	0.09	0.49
1115	581.7	32.17057834	-103.09419284	44.88	74.69	0.09	0.50
1116	582.3	32.17058314	-103.09419393	46.68	75.74	0.09	0.48
1117	582.8	32.17058770	-103.09419558	47.66	76.88	0.09	0.48
1118	583.3	32.17059208	-103.09419769	49.22	78.52	0.07	0.47
1119	583.8	32.17059622	-103.09419990	47.89	78.36	0.06	0.44
1120	584.4	32.17060022	-103.09420216	49.92	81.95	0.07	0.44
1121	584.9	32.17060474	-103.09420363	51.13	83.79	0.08	0.44
1122	585.4	32.17060943	-103.09420478	52.34	85.51	0.08	0.45
1123	585.9	32.17061380	-103.09420582	53.01	84.53	0.07	0.45
1124	586.4	32.17061808	-103.09420684	56.06	85.47	0.04	0.45
1125	587.0	32.17062239	-103.09420878	60.39	86.88	0.05	0.46
1126	587.5	32.17062670	-103.09421084	59.22	85.94	0.05	0.44
1127	588.0	32.17063060	-103.09421353	56.37	84.41	0.06	0.41
1128	588.5	32.17063452	-103.09421617	52.70	83.16	0.06	0.37
1129	589.1	32.17063922	-103.09421764	48.44	78.71	0.06	0.35
1130	589.6	32.17064390	-103.09421906	45.47	73.09	0.07	0.34
1131	590.1	32.17064857	-103.09422027	41.37	68.56	0.07	0.36
1132	590.6	32.17065311	-103.09422167	37.50	63.13	0.06	0.33
1133	591.2	32.17065721	-103.09422370	36.48	60.98	0.07	0.35
1134	591.7	32.17066113	-103.09422602	36.02	58.95	0.06	0.32
1135	592.2	32.17066472	-103.09422903	35.82	58.13	0.08	0.33
1136	592.7	32.17066783	-103.09423262	34.77	56.33	0.09	0.34
1137	593.2	32.17067024	-103.09423715	33.75	55.20	0.08	0.33
1138	593.8	32.17067074	-103.09424166	34.77	55.78	0.08	0.34
1139	594.3	32.17066923	-103.09424619	35.20	56.72	0.09	0.32
1140	594.8	32.17066654	-103.09424921	34.45	57.15	0.09	0.33
1141	595.3	32.17066294	-103.09425108	33.56	54.96	0.11	0.37
1142	595.8	32.17065899	-103.09425174	34.92	56.84	0.12	0.39
1143	596.4	32.17065484	-103.09425175	36.41	59.61	0.10	0.41
1144	596.9	32.17065052	-103.09425104	37.66	61.72	0.09	0.38
1145	597.4	32.17064611	-103.09425008	39.30	64.81	0.09	0.38
1146	597.9	32.17064234	-103.09424850	41.37	67.58	0.10	0.39
1147	598.5	32.17063873	-103.09424680	42.23	69.22	0.10	0.41
1148	599.0	32.17063494	-103.09424464	43.56	70.70	0.08	0.39
1149	599.5	32.17063113	-103.09424242	47.15	75.16	0.09	0.39
1150	600.0	32.17062652	-103.09424059	49.69	79.06	0.08	0.39
1151	600.5	32.17062196	-103.09423873	50.74	81.84	0.07	0.41
1152	601.1	32.17061792	-103.09423646	50.66	83.67	0.07	0.44
1153	601.6	32.17061381	-103.09423405	49.77	81.88	0.06	0.41
1154	602.1	32.17060990	-103.09423137	51.33	84.30	0.08	0.44
1155	602.6	32.17060582	-103.09422890	52.89	88.28	0.10	0.48
1156	603.2	32.17060149	-103.09422721	54.14	89.88	0.08	0.48
1157	603.7	32.17059713	-103.09422576	54.26	90.35	0.09	0.48
1158	604.2	32.17059269	-103.09422480	53.91	89.02	0.08	0.49
1159	604.7	32.17058819	-103.09422403	54.69	89.65	0.09	0.49
1160	605.2	32.17058364	-103.09422353	53.16	88.20	0.08	0.49
1161	605.8	32.17057943	-103.09422287	50.20	85.08	0.08	0.49
1162	606.3	32.17057557	-103.09422205	50.51	86.91	0.08	0.51
1163	606.8	32.17057146	-103.09422121	49.88	86.06	0.07	0.52
1164	607.3	32.17056717	-103.09422037	46.76	82.23	0.08	0.53
1165	607.9	32.17056348	-103.09422053	46.09	81.13	0.08	0.53
1166	608.4	32.17056007	-103.09422116	45.47	77.97	0.07	0.52
1167	608.9	32.17055716	-103.09422287	45.35	76.95	0.07	0.52
1168	609.4	32.17055441	-103.09422492	47.27	79.41	0.08	0.56

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1169	609.9	32.17055545	-103.09422854	51.95	85.35	0.11	0.62
1170	610.5	32.17055719	-103.09423246	60.51	96.06	0.10	0.65
1171	611.0	32.17055995	-103.09423531	90.39	123.24	0.14	0.77
1172	611.5	32.17056279	-103.09423806	120.39	145.16	0.26	1.12
1173	612.0	32.17056552	-103.09423998	124.38	151.17	0.18	1.06
1174	612.6	32.17056832	-103.09424178	148.67	147.31	0.13	1.02
1175	613.1	32.17057169	-103.09424255	176.48	140.12	0.11	0.88
1176	613.6	32.17057486	-103.09424355	193.32	147.66	0.09	0.77
1177	614.1	32.17057709	-103.09424556	217.89	167.70	0.11	0.76
1178	614.6	32.17057937	-103.09424748	204.96	186.88	0.13	0.78
1179	615.2	32.17058176	-103.09424914	181.99	181.45	0.13	0.78
1180	615.7	32.17058404	-103.09425074	148.71	164.06	0.14	0.77
1181	616.2	32.17058615	-103.09425221	136.02	160.66	0.13	0.79
1182	616.7	32.17058819	-103.09425392	128.09	163.20	0.12	0.73
1183	617.3	32.17059015	-103.09425591	120.00	178.20	0.13	0.71
1184	617.8	32.17059280	-103.09425720	105.16	178.91	0.12	0.70
1185	618.3	32.17059607	-103.09425784	92.70	165.94	0.12	0.71
1186	618.8	32.17059923	-103.09425929	79.14	143.59	0.12	0.65
1187	619.3	32.17060232	-103.09426125	72.85	129.14	0.12	0.63
1188	619.9	32.17060581	-103.09426238	66.76	116.76	0.12	0.65
1189	620.4	32.17060948	-103.09426312	62.07	106.52	0.11	0.63
1190	620.9	32.17061278	-103.09426486	62.73	104.73	0.14	0.63
1191	621.4	32.17061598	-103.09426686	60.55	100.43	0.12	0.63
1192	622.0	32.17061940	-103.09426962	59.14	95.23	0.11	0.56
1193	622.5	32.17062285	-103.09427251	60.00	91.45	0.12	0.53
1194	623.0	32.17062695	-103.09427493	57.03	86.37	0.11	0.50
1195	623.5	32.17063106	-103.09427734	50.35	79.26	0.09	0.46
1196	624.0	32.17063476	-103.09428048	45.47	74.02	0.10	0.45
1197	624.6	32.17063837	-103.09428362	41.25	69.30	0.12	0.47
1198	625.1	32.17064140	-103.09428683	38.24	65.51	0.10	0.45
1199	625.6	32.17064439	-103.09429006	34.65	60.27	0.10	0.42
1200	626.1	32.17064725	-103.09429342	32.85	56.56	0.10	0.40
1201	626.7	32.17064916	-103.09429717	32.46	55.74	0.09	0.41
1202	627.2	32.17064879	-103.09430158	32.89	54.61	0.08	0.38
1203	627.7	32.17064731	-103.09430545	33.32	54.10	0.09	0.41
1204	628.2	32.17064397	-103.09430832	33.75	54.10	0.14	0.48
1205	628.7	32.17063992	-103.09431026	34.49	55.55	0.09	0.53
1206	629.3	32.17063501	-103.09431113	35.47	57.31	0.11	0.48
1207	629.8	32.17063025	-103.09431162	37.03	61.21	0.16	0.51
1208	630.3	32.17062559	-103.09431179	38.56	64.96	0.14	0.54
1209	630.8	32.17062163	-103.09431202	40.39	67.27	0.13	0.51
1210	631.4	32.17061806	-103.09431228	43.13	71.48	0.11	0.53
1211	631.9	32.17061459	-103.09431063	44.96	74.14	0.10	0.50
1212	632.4	32.17061117	-103.09430824	48.16	78.36	0.13	0.56
1213	632.9	32.17060782	-103.09430630	53.67	87.58	0.12	0.61
1214	633.4	32.17060448	-103.09430448	62.07	100.74	0.12	0.63
1215	634.0	32.17060138	-103.09430253	76.99	118.98	0.11	0.69
1216	634.5	32.17059831	-103.09430058	86.64	126.84	0.11	0.67
1217	635.0	32.17059516	-103.09429845	115.20	125.94	0.10	0.66
1218	635.5	32.17059197	-103.09429638	165.94	144.41	0.11	0.76
1219	636.1	32.17058829	-103.09429523	199.96	181.76	0.14	0.84
1220	636.6	32.17058486	-103.09429395	199.49	207.50	0.15	0.88
1221	637.1	32.17058295	-103.09429187	220.31	232.77	0.16	0.99
1222	637.6	32.17058120	-103.09429051	239.92	245.55	0.17	1.04
1223	638.1	32.17057999	-103.09429157	243.44	247.58	0.17	1.03
1224	638.7	32.17057907	-103.09429259	246.88	250.39	0.17	1.00
1225	639.2	32.17057880	-103.09429352	245.78	259.84	0.17	1.04
1226	639.7	32.17057854	-103.09429350	223.87	255.98	0.16	1.01
1227	640.2	32.17057829	-103.09429203	219.53	260.20	0.17	1.01
1228	640.8	32.17057644	-103.09429089	216.99	260.90	0.15	0.99
1229	641.3	32.17057290	-103.09429010	224.02	265.31	0.14	0.99
1230	641.8	32.17057014	-103.09428885	227.58	273.91	0.14	1.05
1231	642.3	32.17056796	-103.09428727	240.16	283.87	0.16	1.12
1232	642.8	32.17056580	-103.09428519	253.28	291.95	0.17	1.13
1233	643.4	32.17056365	-103.09428287	251.84	297.19	0.17	1.10

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1234	643.9	32.17056244	-103.09427901	257.31	305.90	0.17	1.13
1235	644.4	32.17056156	-103.09427462	259.14	298.36	0.20	1.13
1236	644.9	32.17056279	-103.09427169	243.67	284.65	0.19	1.12
1237	645.5	32.17056447	-103.09426908	265.86	287.31	0.21	1.16
1238	646.0	32.17056720	-103.09426652	251.64	281.95	0.17	1.09
1239	646.5	32.17057005	-103.09426396	252.81	283.75	0.14	1.01
1240	647.0	32.17057359	-103.09426228	259.96	282.85	0.12	0.98
1241	647.5	32.17057720	-103.09426078	236.52	264.77	0.11	0.89
1242	648.1	32.17058144	-103.09426114	226.88	247.70	0.11	0.84
1243	648.6	32.17058557	-103.09426164	186.17	207.85	0.13	0.81
1244	649.1	32.17058908	-103.09426284	136.09	176.29	0.12	0.75
1245	649.6	32.17059263	-103.09426457	118.56	183.71	0.13	0.74
1246	650.2	32.17059628	-103.09426787	103.71	171.25	0.15	0.77
1247	650.7	32.17059920	-103.09427143	88.83	154.73	0.15	0.78
1248	651.2	32.17060068	-103.09427554	78.91	140.59	0.13	0.73
1249	651.7	32.17060142	-103.09427995	79.65	138.91	0.11	0.71
1250	652.2	32.17060113	-103.09428473	85.82	143.01	0.11	0.67
1251	652.8	32.17060032	-103.09428963	87.15	140.70	0.12	0.69
1252	653.3	32.17059899	-103.09429465	103.48	131.25	0.11	0.67
1253	653.8	32.17059693	-103.09429875	146.95	122.23	0.11	0.73
1254	654.3	32.17059436	-103.09430220	181.37	129.18	0.11	0.73
1255	654.9	32.17059128	-103.09430423	199.88	152.34	0.11	0.78
1256	655.4	32.17058796	-103.09430559	225.35	186.95	0.13	0.84
1257	655.9	32.17058412	-103.09430596	244.18	229.84	0.13	0.89
1258	656.4	32.17058012	-103.09430601	241.95	259.81	0.16	1.01
1259	656.9	32.17057607	-103.09430552	245.08	270.16	0.16	1.07
1260	657.5	32.17057200	-103.09430492	217.46	271.13	0.14	1.01
1261	658.0	32.17056906	-103.09430240	207.42	278.91	0.15	1.07
1262	658.5	32.17056622	-103.09429971	207.54	278.28	0.18	1.13
1263	659.0	32.17056416	-103.09429564	218.13	278.91	0.17	1.18
1264	659.6	32.17056208	-103.09429159	242.46	298.05	0.17	1.22
1265	660.1	32.17055988	-103.09428767	246.45	300.43	0.13	1.14
1266	660.6	32.17055803	-103.09428360	249.69	293.59	0.13	1.10
1267	661.1	32.17055768	-103.09427889	256.06	300.70	0.16	1.15
1268	661.6	32.17055798	-103.09427441	247.23	288.48	0.14	1.08
1269	662.2	32.17056001	-103.09427057	252.81	280.55	0.17	1.11
1270	662.7	32.17056246	-103.09426677	257.31	275.55	0.16	1.06
1271	663.2	32.17056569	-103.09426303	243.83	270.63	0.15	1.00
1272	663.7	32.17056945	-103.09426020	244.49	272.85	0.13	0.92
1273	664.3	32.17057392	-103.09425848	251.09	268.16	0.12	0.90
1274	664.8	32.17057827	-103.09425788	228.91	244.02	0.12	0.85
1275	665.3	32.17058255	-103.09425828	205.66	221.68	0.13	0.82
1276	665.8	32.17058639	-103.09425988	154.14	183.36	0.11	0.75
1277	666.3	32.17058996	-103.09426224	130.74	174.49	0.12	0.74
1278	666.9	32.17059317	-103.09426552	112.85	177.77	0.11	0.70
1279	667.4	32.17059622	-103.09426921	96.64	165.35	0.15	0.77
1280	667.9	32.17059863	-103.09427376	86.48	154.02	0.13	0.81
1281	668.4	32.17060086	-103.09427856	80.27	140.90	0.11	0.72
1282	669.0	32.17060130	-103.09428379	82.31	139.26	0.11	0.67
1283	669.5	32.17060147	-103.09428909	85.94	141.76	0.11	0.67
1284	670.0	32.17059966	-103.09429360	92.03	134.41	0.11	0.67
1285	670.5	32.17059772	-103.09429800	122.54	125.23	0.11	0.69
1286	671.0	32.17059491	-103.09430082	156.09	126.09	0.11	0.73
1287	671.6	32.17059199	-103.09430345	186.02	137.07	0.12	0.77
1288	672.1	32.17058832	-103.09430473	208.09	178.67	0.12	0.81
1289	672.6	32.17058448	-103.09430574	228.36	228.48	0.13	0.90
1290	673.1	32.17057995	-103.09430572	235.94	253.36	0.15	0.98
1291	673.7	32.17057576	-103.09430510	218.16	263.09	0.15	1.01
1292	674.2	32.17057268	-103.09430316	213.48	281.33	0.16	1.10
1293	674.7	32.17056984	-103.09430086	201.56	277.58	0.18	1.13
1294	675.2	32.17056749	-103.09429801	203.36	276.91	0.17	1.19
1295	675.7	32.17056514	-103.09429483	222.23	282.97	0.15	1.20
1296	676.3	32.17056277	-103.09429127	233.95	292.27	0.14	1.17
1297	676.8	32.17056091	-103.09428707	248.05	298.36	0.14	1.14
1298	677.3	32.17055947	-103.09428240	258.20	307.27	0.14	1.12

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1299	677.8	32.17055841	-103.09427797	246.84	293.09	0.15	1.08
1300	678.4	32.17055757	-103.09427367	233.44	267.38	0.13	1.12
1301	678.9	32.17055634	-103.09426912	159.45	214.61	0.46	1.43
1302	679.4	32.17055496	-103.09426446	131.84	168.05	0.16	1.27
1303	679.9	32.17055191	-103.09426190	93.83	157.15	0.12	0.89
1304	680.4	32.17054843	-103.09425988	69.81	131.29	0.09	0.74
1305	681.0	32.17054459	-103.09425951	58.83	111.21	0.10	0.74
1306	681.5	32.17054071	-103.09425935	50.27	95.00	0.09	0.74
1307	682.0	32.17053629	-103.09425978	46.13	85.55	0.08	0.68
1308	682.5	32.17053195	-103.09426034	44.06	80.08	0.07	0.64
1309	683.1	32.17052949	-103.09426249	41.09	73.20	0.06	0.64
1310	683.6	32.17052709	-103.09426451	39.77	70.27	0.05	0.61
1311	684.1	32.17052510	-103.09426571	41.52	71.60	0.05	0.63
1312	684.6	32.17052332	-103.09426715	42.03	71.76	0.05	0.64
1313	685.1	32.17052223	-103.09426937	42.11	71.13	0.06	0.65
1314	685.7	32.17052222	-103.09427175	44.61	74.81	0.07	0.66
1315	686.2	32.17052460	-103.09427443	46.68	78.79	0.08	0.67
1316	686.7	32.17052740	-103.09427706	52.07	88.16	0.09	0.74
1317	687.2	32.17053085	-103.09427961	57.81	96.21	0.10	0.76
1318	687.8	32.17053431	-103.09428201	67.66	110.27	0.11	0.81
1319	688.3	32.17053781	-103.09428423	81.37	128.71	0.11	0.87
1320	688.8	32.17054135	-103.09428625	96.48	145.51	0.12	0.92
1321	689.3	32.17054494	-103.09428811	110.35	153.32	0.15	0.91
1322	689.8	32.17054871	-103.09428940	139.57	165.98	0.15	0.96
1323	690.4	32.17055255	-103.09429037	184.26	198.83	0.15	1.02
1324	690.9	32.17055559	-103.09429290	194.84	245.20	0.14	1.06
1325	691.4	32.17055834	-103.09429598	214.06	276.60	0.17	1.16
1326	691.9	32.17056157	-103.09429729	220.43	284.57	0.19	1.20
1327	692.5	32.17056491	-103.09429822	213.67	288.40	0.16	1.19
1328	693.0	32.17056778	-103.09429983	222.97	298.16	0.16	1.20
1329	693.5	32.17057060	-103.09430150	231.91	295.98	0.16	1.17
1330	694.0	32.17057407	-103.09430230	234.65	287.97	0.15	1.13
1331	694.5	32.17057759	-103.09430310	230.98	272.73	0.15	1.08
1332	695.1	32.17058129	-103.09430418	226.29	254.49	0.17	1.04
1333	695.6	32.17058493	-103.09430539	210.74	242.07	0.13	0.95
1334	696.1	32.17058826	-103.09430721	195.90	228.16	0.12	0.87
1335	696.6	32.17059173	-103.09430874	145.12	170.98	0.13	0.79
1336	697.2	32.17059564	-103.09430937	98.75	116.25	0.12	0.71
1337	697.7	32.17059961	-103.09431018	75.98	121.33	0.11	0.64
1338	698.2	32.17060373	-103.09431135	59.96	114.73	0.11	0.61
1339	698.7	32.17060767	-103.09431297	50.23	97.03	0.10	0.55
1340	699.2	32.17061136	-103.09431521	44.10	82.42	0.10	0.52
1341	699.8	32.17061471	-103.09431812	40.90	74.41	0.10	0.51
1342	700.3	32.17061772	-103.09432168	38.36	69.26	0.09	0.49
1343	700.8	32.17061952	-103.09432592	37.38	65.66	0.09	0.48
1344	701.3	32.17062048	-103.09433066	37.11	63.52	0.08	0.48
1345	701.9	32.17062064	-103.09433473	36.21	61.84	0.07	0.46
1346	702.4	32.17062039	-103.09433849	36.29	61.13	0.08	0.47
1347	702.9	32.17061975	-103.09434152	35.78	60.59	0.08	0.48
1348	703.4	32.17061897	-103.09434431	35.86	60.16	0.08	0.45
1349	703.9	32.17061611	-103.09434628	35.90	60.00	0.09	0.46
1350	704.5	32.17061286	-103.09434808	36.52	60.43	0.09	0.45
1351	705.0	32.17060951	-103.09434704	38.09	63.40	0.15	0.57
1352	705.5	32.17060613	-103.09434576	40.08	66.41	0.20	0.58
1353	706.0	32.17060271	-103.09434416	43.79	70.63	0.12	0.58
1354	706.6	32.17059932	-103.09434247	52.15	81.80	0.15	0.60
1355	707.1	32.17059628	-103.09433994	60.23	90.47	0.13	0.66
1356	707.6	32.17059347	-103.09433738	74.41	96.09	0.14	0.71
1357	708.1	32.17059171	-103.09433469	96.76	110.16	0.12	0.72
1358	708.6	32.17058981	-103.09433195	105.82	117.23	0.13	0.74
1359	709.2	32.17058753	-103.09432911	141.25	123.67	0.11	0.77
1360	709.7	32.17058476	-103.09432646	167.15	154.92	0.12	0.80
1361	710.2	32.17058109	-103.09432421	175.00	182.81	0.12	0.83
1362	710.7	32.17057736	-103.09432158	190.12	216.06	0.14	0.93
1363	711.3	32.17057352	-103.09431847	182.58	230.51	0.15	0.99

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1364	711.8	32.17057053	-103.09431553	179.49	234.88	0.15	1.03
1365	712.3	32.17056833	-103.09431276	194.65	254.88	0.18	1.10
1366	712.8	32.17056575	-103.09430953	215.98	284.53	0.21	1.19
1367	713.3	32.17056294	-103.09430603	219.57	300.20	0.21	1.24
1368	713.9	32.17056011	-103.09430254	233.52	296.06	0.20	1.28
1369	714.4	32.17055728	-103.09429905	241.33	299.14	0.16	1.22
1370	714.9	32.17055412	-103.09429573	230.98	282.77	0.17	1.13
1371	715.4	32.17055088	-103.09429248	191.64	233.98	0.24	1.28
1372	716.0	32.17054730	-103.09429059	145.66	189.06	0.25	1.25
1373	716.5	32.17054367	-103.09428891	106.33	169.65	0.16	1.10
1374	717.0	32.17053995	-103.09428711	85.23	156.84	0.14	0.98
1375	717.5	32.17053627	-103.09428532	70.31	135.82	0.13	0.90
1376	718.0	32.17053324	-103.09428354	60.86	116.76	0.12	0.86
1377	718.6	32.17053017	-103.09428220	53.01	99.02	0.10	0.79
1378	719.1	32.17052679	-103.09428396	48.87	88.71	0.09	0.74
1379	719.6	32.17052362	-103.09428596	48.28	85.78	0.08	0.73
1380	720.1	32.17052133	-103.09428890	49.45	85.82	0.10	0.76
1381	720.7	32.17051959	-103.09429224	51.48	87.77	0.09	0.76
1382	721.2	32.17051924	-103.09429633	55.63	93.98	0.10	0.77
1383	721.7	32.17052019	-103.09430016	59.84	101.09	0.10	0.81
1384	722.2	32.17052332	-103.09430346	65.59	108.91	0.09	0.82
1385	722.7	32.17052660	-103.09430672	76.09	126.99	0.13	0.93
1386	723.3	32.17053007	-103.09430995	88.40	146.48	0.14	1.00
1387	723.8	32.17053307	-103.09431282	93.75	155.16	0.13	0.97
1388	724.3	32.17053566	-103.09431537	105.23	173.01	0.14	1.01
1389	724.8	32.17053871	-103.09431770	118.13	187.54	0.15	1.06
1390	725.4	32.17054203	-103.09431990	135.16	193.87	0.17	1.09
1391	725.9	32.17054523	-103.09432235	164.88	197.77	0.18	1.15
1392	726.4	32.17054837	-103.09432491	188.13	210.43	0.17	1.19
1393	726.9	32.17055222	-103.09432704	210.51	229.73	0.15	1.14
1394	727.4	32.17055625	-103.09432907	219.61	259.61	0.17	1.13
1395	728.0	32.17055933	-103.09433000	213.75	259.38	0.16	1.13
1396	728.5	32.17056231	-103.09433078	206.33	248.48	0.14	1.07
1397	729.0	32.17056329	-103.09433363	196.60	237.85	0.13	1.04
1398	729.5	32.17056432	-103.09433649	199.92	228.67	0.14	1.03
1399	730.1	32.17056748	-103.09433804	161.37	196.06	0.15	1.02
1400	730.6	32.17057061	-103.09433962	141.68	191.45	0.13	0.94
1401	731.1	32.17057354	-103.09434141	127.07	203.91	0.13	0.90
1402	731.6	32.17057675	-103.09434297	108.36	171.33	0.12	0.85
1403	732.1	32.17058087	-103.09434373	95.08	120.35	0.11	0.79
1404	732.7	32.17058499	-103.09434431	74.26	96.52	0.13	0.75
1405	733.2	32.17058919	-103.09434450	61.21	96.25	0.12	0.72
1406	733.7	32.17059309	-103.09434519	52.85	97.23	0.11	0.67
1407	734.2	32.17059654	-103.09434662	46.52	88.24	0.16	0.71
1408	734.8	32.17059992	-103.09434835	42.77	79.06	0.15	0.66
1409	735.3	32.17060325	-103.09435039	40.39	71.56	0.09	0.66
1410	735.8	32.17060652	-103.09435259	38.67	68.01	0.09	0.59
1411	736.3	32.17060975	-103.09435492	37.23	65.82	0.08	0.55
1412	736.8	32.17061189	-103.09435818	36.56	64.26	0.08	0.55
1413	737.4	32.17061346	-103.09436196	35.98	61.84	0.09	0.52
1414	737.9	32.17061397	-103.09436562	35.43	61.02	0.10	0.49
1415	738.4	32.17061411	-103.09436926	35.94	60.94	0.10	0.50
1416	738.9	32.17061191	-103.09437287	35.74	60.43	0.10	0.50
1417	739.5	32.17060920	-103.09437647	36.60	62.03	0.10	0.49
1418	740.0	32.17060532	-103.09437696	38.79	65.35	0.11	0.54
1419	740.5	32.17060131	-103.09437712	40.59	67.27	0.11	0.57
1420	741.0	32.17059774	-103.09437618	41.21	69.77	0.10	0.56
1421	741.5	32.17059415	-103.09437520	44.41	75.08	0.11	0.60
1422	742.1	32.17059027	-103.09437395	47.46	80.23	0.11	0.64
1423	742.6	32.17058658	-103.09437251	49.65	84.57	0.10	0.62
1424	743.1	32.17058387	-103.09437007	56.41	94.73	0.12	0.69
1425	743.6	32.17058108	-103.09436773	65.39	107.85	0.12	0.74
1426	744.2	32.17057806	-103.09436570	72.03	115.00	0.12	0.74
1427	744.7	32.17057478	-103.09436395	82.07	121.76	0.13	0.79
1428	745.2	32.17057098	-103.09436276	121.45	118.16	0.13	0.85

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1429	745.7	32.17056754	-103.09436115	153.91	135.08	0.14	0.87
1430	746.2	32.17056463	-103.09435895	202.54	170.39	0.15	0.91
1431	746.8	32.17056150	-103.09435728	228.95	217.31	0.14	0.96
1432	747.3	32.17055820	-103.09435613	219.92	230.66	0.12	0.98
1433	747.8	32.17055519	-103.09435493	234.45	232.46	0.13	1.04
1434	748.3	32.17055237	-103.09435370	239.18	240.94	0.13	1.05
1435	748.9	32.17055003	-103.09435179	239.34	258.40	0.13	1.08
1436	749.4	32.17054795	-103.09434955	254.22	270.94	0.15	1.15
1437	749.9	32.17054488	-103.09434778	237.77	256.68	0.17	1.19
1438	750.4	32.17054152	-103.09434617	210.43	241.33	0.17	1.18
1439	750.9	32.17053876	-103.09434418	210.51	253.13	0.18	1.23
1440	751.5	32.17053612	-103.09434213	209.18	265.90	0.16	1.20
1441	752.0	32.17053275	-103.09433975	212.03	259.61	0.15	1.16
1442	752.5	32.17052934	-103.09433735	217.50	250.04	0.14	1.16
1443	753.0	32.17052593	-103.09433521	209.38	237.46	0.14	1.16
1444	753.6	32.17052255	-103.09433296	188.48	219.02	0.13	1.10
1445	754.1	32.17051954	-103.09432986	176.21	204.34	0.14	1.07
1446	754.6	32.17051644	-103.09432673	133.44	167.58	0.15	1.03
1447	755.1	32.17051316	-103.09432369	98.79	144.49	0.13	0.95
1448	755.6	32.17050981	-103.09432086	82.62	145.94	0.14	0.94
1449	756.2	32.17050644	-103.09431870	72.81	133.79	0.14	0.94
1450	756.7	32.17050341	-103.09431650	67.07	119.06	0.12	0.87
1451	757.2	32.17050103	-103.09431421	66.02	112.34	0.12	0.83
1452	757.7	32.17049822	-103.09431225	64.84	106.09	0.12	0.82
1453	758.3	32.17049486	-103.09431072	62.66	98.87	0.11	0.79
1454	758.8	32.17049143	-103.09430958	62.34	95.86	0.12	0.77
1455	759.3	32.17048794	-103.09430880	58.71	91.95	0.13	0.75
1456	759.8	32.17048485	-103.09430759	53.95	88.01	0.14	0.76
1457	760.3	32.17048201	-103.09430610	51.09	85.86	0.15	0.75
1458	760.9	32.17047872	-103.09430554	49.30	82.54	0.12	0.73
1459	761.4	32.17047522	-103.09430540	47.85	80.00	0.09	0.69
1460	761.9	32.17047170	-103.09430521	46.41	78.44	0.09	0.67
1461	762.4	32.17046817	-103.09430502	46.17	77.77	0.09	0.67
1462	763.0	32.17046487	-103.09430445	46.84	76.76	0.08	0.66
1463	763.5	32.17046161	-103.09430382	46.91	76.80	0.09	0.65
1464	764.0	32.17045841	-103.09430356	46.17	74.92	0.08	0.61
1465	764.5	32.17045522	-103.09430330	46.64	74.18	0.07	0.60
1466	765.0	32.17045234	-103.09430264	47.89	76.80	0.07	0.59
1467	765.6	32.17044950	-103.09430196	48.40	77.19	0.11	0.59
1468	766.1	32.17044703	-103.09430120	47.27	76.91	0.07	0.57
1469	766.6	32.17044447	-103.09430077	48.79	77.77	0.06	0.57
1470	767.1	32.17044159	-103.09430169	49.10	78.09	0.06	0.54
1471	767.7	32.17043871	-103.09430221	48.24	77.42	0.05	0.52
1472	768.2	32.17043586	-103.09430173	48.36	78.05	0.06	0.53
1473	768.7	32.17043280	-103.09430165	49.06	78.09	0.06	0.55
1474	769.2	32.17042938	-103.09430224	50.74	80.04	0.05	0.53
1475	769.7	32.17042577	-103.09430280	52.89	85.20	0.04	0.49
1476	770.3	32.17042193	-103.09430331	56.80	86.09	-0.04	0.67
1477	770.8	32.17041778	-103.09430346	61.45	82.03	-0.10	1.23
1478	771.3	32.17041335	-103.09430330	58.75	82.85	-0.04	1.28
1479	771.8	32.17040849	-103.09430323	53.52	83.95	0.04	0.60
1480	772.4	32.17040336	-103.09430321	51.56	81.64	0.07	0.48
1481	772.9	32.17039828	-103.09430368	48.59	77.93	0.11	0.49
1482	773.4	32.17039320	-103.09430435	45.12	74.22	0.09	0.48
1483	773.9	32.17038824	-103.09430478	44.84	71.68	0.11	0.48
1484	774.4	32.17038331	-103.09430516	43.79	67.15	0.13	0.54
1485	775.0	32.17037844	-103.09430496	43.48	64.77	0.15	0.53
1486	775.5	32.17037358	-103.09430469	42.93	66.37	0.14	0.53
1487	776.0	32.17036933	-103.09430451	41.21	65.63	0.12	0.51
1488	776.5	32.17036513	-103.09430434	41.95	66.56	0.14	0.50
1489	777.1	32.17036105	-103.09430428	43.75	68.59	0.11	0.49
1490	777.6	32.17035716	-103.09430416	46.72	70.35	0.08	0.47
1491	778.1	32.17035444	-103.09430375	54.14	76.29	0.08	0.45
1492	778.6	32.17035186	-103.09430331	60.90	81.21	0.08	0.45
1493	779.1	32.17034975	-103.09430275	63.16	79.61	0.08	0.46

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1494	779.7	32.17034770	-103.09430265	65.27	67.81	0.10	0.45
1495	780.2	32.17034575	-103.09430355	73.75	50.98	0.10	0.42
1496	780.7	32.17034441	-103.09430401	78.48	42.58	0.09	0.42
1497	781.2	32.17034402	-103.09430380	81.64	38.59	0.10	0.43
1498	781.8	32.17034319	-103.09430368	83.09	34.57	0.10	0.44
1499	782.3	32.17034189	-103.09430366	81.84	33.36	0.10	0.44
1500	782.8	32.17033923	-103.09430373	78.40	37.54	0.13	0.44
1501	783.3	32.17033552	-103.09430386	72.11	65.51	0.10	0.43
1502	783.8	32.17033153	-103.09430440	56.64	80.31	0.09	0.41
1503	784.4	32.17032740	-103.09430516	48.36	74.65	0.08	0.41
1504	784.9	32.17032552	-103.09430819	44.18	67.89	0.04	0.39
1505	785.4	32.17032446	-103.09431205	42.03	64.96	0.04	0.45
1506	785.9	32.17032455	-103.09431541	42.85	65.66	0.02	0.48
1507	786.5	32.17032490	-103.09431867	43.63	64.88	0.02	0.37
1508	787.0	32.17032711	-103.09432156	46.56	66.48	0.03	0.34
1509	787.5	32.17032951	-103.09432441	52.27	73.32	0.03	0.34
1510	788.0	32.17033414	-103.09432583	53.98	69.10	0.02	0.34
1511	788.5	32.17033877	-103.09432711	55.20	49.49	0.06	0.38
1512	789.1	32.17034287	-103.09432691	54.02	60.66	0.05	0.41
1513	789.6	32.17034696	-103.09432683	48.24	71.52	0.05	0.39
1514	790.1	32.17035095	-103.09432738	45.51	71.72	0.08	0.39
1515	790.6	32.17035507	-103.09432802	42.89	68.40	0.09	0.41
1516	791.2	32.17035967	-103.09432890	43.28	65.31	0.09	0.41
1517	791.7	32.17036428	-103.09432938	42.66	62.50	0.09	0.43
1518	792.2	32.17036891	-103.09432902	42.31	59.22	0.10	0.44
1519	792.7	32.17037321	-103.09432905	42.77	62.58	0.11	0.46
1520	793.2	32.17037708	-103.09432964	42.85	67.23	0.08	0.45
1521	793.8	32.17038088	-103.09433087	42.70	68.91	0.08	0.46
1522	794.3	32.17038461	-103.09433273	45.04	71.06	0.10	0.44
1523	794.8	32.17038899	-103.09433453	49.06	76.17	0.10	0.47
1524	795.3	32.17039383	-103.09433628	54.73	81.60	0.14	0.51
1525	795.9	32.17039862	-103.09433754	61.95	88.56	0.18	0.55
1526	796.4	32.17040337	-103.09433853	69.26	96.91	0.15	0.58
1527	796.9	32.17040807	-103.09434042	80.04	110.08	0.20	0.62
1528	797.4	32.17041277	-103.09434262	80.98	112.42	0.23	0.70
1529	797.9	32.17041620	-103.09434462	73.09	104.73	0.18	0.75
1530	798.5	32.17041939	-103.09434659	70.55	105.55	0.23	0.79
1531	799.0	32.17042342	-103.09434816	65.55	104.81	0.23	0.81
1532	799.5	32.17042753	-103.09434970	58.01	98.91	0.19	0.81
1533	800.0	32.17043151	-103.09435156	52.58	92.85	0.18	0.79
1534	800.6	32.17043546	-103.09435343	48.83	88.32	0.19	0.80
1535	801.1	32.17043914	-103.09435533	46.84	85.04	0.19	0.81
1536	801.6	32.17044284	-103.09435724	45.08	81.95	0.18	0.78
1537	802.1	32.17044641	-103.09435906	44.38	79.49	0.16	0.78
1538	802.6	32.17045005	-103.09436064	44.65	79.53	0.17	0.79
1539	803.2	32.17045381	-103.09436148	45.43	78.91	0.15	0.79
1540	803.7	32.17045750	-103.09436243	46.29	80.20	0.12	0.77
1541	804.2	32.17046104	-103.09436359	48.59	84.41	0.16	0.80
1542	804.7	32.17046494	-103.09436444	52.27	90.23	0.13	0.82
1543	805.3	32.17046933	-103.09436490	56.21	94.41	0.13	0.81
1544	805.8	32.17047330	-103.09436523	65.63	106.21	0.15	0.86
1545	806.3	32.17047690	-103.09436543	78.63	123.87	0.15	0.88
1546	806.8	32.17048038	-103.09436567	89.96	136.91	0.15	0.89
1547	807.3	32.17048379	-103.09436593	102.27	146.13	0.15	0.94
1548	807.9	32.17048765	-103.09436588	114.73	147.34	0.12	0.91
1549	808.4	32.17049171	-103.09436569	125.35	163.98	0.13	0.94
1550	808.9	32.17049607	-103.09436528	146.06	148.98	0.12	0.94
1551	809.4	32.17050054	-103.09436479	179.34	130.82	0.12	0.95
1552	810.0	32.17050379	-103.09436487	187.19	169.92	0.14	0.96
1553	810.5	32.17050685	-103.09436505	183.67	202.50	0.15	1.02
1554	811.0	32.17051046	-103.09436462	191.17	202.54	0.14	1.04
1555	811.5	32.17051411	-103.09436415	189.53	192.23	0.17	1.13
1556	812.0	32.17051780	-103.09436392	185.59	181.09	0.17	1.20
1557	812.6	32.17052141	-103.09436375	155.55	174.41	0.11	0.98
1558	813.1	32.17052430	-103.09436397	137.62	165.63	0.43	0.71

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1559	813.6	32.17052725	-103.09436402	135.35	165.20	0.75	1.43
1560	814.1	32.17053037	-103.09436336	159.77	194.61	0.29	1.73
1561	814.7	32.17053357	-103.09436324	147.89	230.43	0.17	1.38
1562	815.2	32.17053693	-103.09436449	171.80	243.48	0.16	1.32
1563	815.7	32.17054043	-103.09436540	181.52	227.15	0.15	1.25
1564	816.2	32.17054413	-103.09436571	185.00	222.19	0.13	1.13
1565	816.7	32.17054818	-103.09436594	223.59	215.12	0.14	1.12
1566	817.3	32.17055268	-103.09436607	223.91	202.66	0.14	1.07
1567	817.8	32.17055723	-103.09436636	185.04	181.68	0.13	0.99
1568	818.3	32.17056183	-103.09436679	147.46	168.40	0.16	0.99
1569	818.8	32.17056663	-103.09436624	110.23	160.82	0.15	0.91
1570	819.4	32.17057153	-103.09436511	87.15	146.68	0.15	0.86
1571	819.9	32.17057545	-103.09436402	68.24	130.39	0.13	0.78
1572	820.4	32.17057897	-103.09436296	58.87	115.31	0.11	0.73
1573	820.9	32.17058254	-103.09436339	54.73	104.53	0.12	0.70
1574	821.4	32.17058612	-103.09436421	50.90	95.23	0.12	0.68
1575	822.0	32.17058994	-103.09436428	46.99	86.13	0.10	0.65
1576	822.5	32.17059380	-103.09436424	43.67	79.73	0.10	0.62
1577	823.0	32.17059757	-103.09436416	39.69	72.66	0.10	0.58
1578	823.5	32.17060134	-103.09436415	37.46	67.27	0.10	0.55
1579	824.1	32.17060511	-103.09436545	36.37	64.84	0.10	0.55
1580	824.6	32.17060887	-103.09436659	36.37	63.75	0.12	0.54
1581	825.1	32.17061259	-103.09436673	35.00	61.68	0.11	0.51
1582	825.6	32.17061626	-103.09436719	32.77	57.77	0.11	0.50
1583	826.1	32.17061972	-103.09436871	31.88	55.82	0.10	0.49
1584	826.7	32.17062317	-103.09437091	32.03	54.57	0.08	0.47
1585	827.2	32.17062657	-103.09437460	31.80	54.38	0.10	0.47
1586	827.7	32.17062898	-103.09437882	31.09	52.77	0.12	0.46
1587	828.2	32.17062985	-103.09438383	30.23	50.98	0.11	0.45
1588	828.8	32.17062922	-103.09438855	31.91	53.16	0.08	0.47
1589	829.3	32.17062697	-103.09439299	34.22	55.00	0.04	0.42
1590	829.8	32.17062354	-103.09439620	34.84	57.66	0.08	0.46
1591	830.3	32.17061921	-103.09439846	35.51	59.65	0.10	0.48
1592	830.8	32.17061485	-103.09439870	35.82	60.94	0.10	0.49
1593	831.4	32.17061047	-103.09439784	37.38	63.24	0.12	0.54
1594	831.9	32.17060644	-103.09439674	38.24	65.27	0.12	0.56
1595	832.4	32.17060251	-103.09439554	39.34	67.07	0.11	0.58
1596	832.9	32.17059802	-103.09439451	41.21	70.51	0.11	0.59
1597	833.5	32.17059339	-103.09439350	43.59	73.59	0.10	0.59
1598	834.0	32.17058892	-103.09439173	46.52	77.34	0.12	0.61
1599	834.5	32.17058448	-103.09438987	51.29	86.56	0.13	0.67
1600	835.0	32.17058111	-103.09438787	58.16	98.83	0.13	0.75
1601	835.5	32.17057770	-103.09438593	64.34	107.62	0.11	0.75
1602	836.1	32.17057361	-103.09438476	71.13	116.17	0.11	0.77
1603	836.6	32.17056959	-103.09438360	86.91	136.95	0.11	0.80
1604	837.1	32.17056610	-103.09438253	114.38	172.77	0.12	0.88
1605	837.6	32.17056260	-103.09438136	126.68	179.81	0.12	0.92
1606	838.2	32.17055907	-103.09437992	166.02	166.29	0.13	0.92
1607	838.7	32.17055546	-103.09437899	209.92	163.71	0.13	0.96
1608	839.2	32.17055172	-103.09437910	223.13	191.13	0.14	0.99
1609	839.7	32.17054813	-103.09437888	219.26	199.02	0.15	1.07
1610	840.2	32.17054473	-103.09437819	194.18	185.59	0.15	1.14
1611	840.8	32.17054146	-103.09437773	156.91	172.11	0.15	1.13
1612	841.3	32.17053834	-103.09437751	138.63	177.93	0.22	1.26
1613	841.8	32.17053468	-103.09437741	125.74	194.18	0.24	1.28
1614	842.3	32.17053066	-103.09437740	123.20	201.84	0.25	1.32
1615	842.9	32.17052752	-103.09437640	130.12	208.05	0.22	1.34
1616	843.4	32.17052481	-103.09437493	127.70	191.48	0.17	1.18
1617	843.9	32.17052111	-103.09437445	150.59	181.41	0.16	1.09
1618	844.4	32.17051711	-103.09437431	161.13	170.59	0.16	1.10
1619	844.9	32.17051350	-103.09437441	179.77	165.78	0.15	1.11
1620	845.5	32.17050997	-103.09437456	185.82	180.39	0.13	1.06
1621	846.0	32.17050713	-103.09437374	212.89	206.80	0.14	1.07
1622	846.5	32.17050434	-103.09437283	214.73	210.12	0.15	1.04
1623	847.0	32.17050053	-103.09437141	167.03	159.22	0.13	0.98

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1624	847.6	32.17049661	-103.09437010	135.27	128.44	0.14	0.95
1625	848.1	32.17049163	-103.09436982	127.11	161.56	0.14	0.94
1626	848.6	32.17048667	-103.09436955	99.30	168.71	0.16	0.95
1627	849.1	32.17048198	-103.09436930	75.98	143.40	0.16	0.93
1628	849.6	32.17047725	-103.09436902	64.02	121.99	0.14	0.90
1629	850.2	32.17047255	-103.09436869	58.32	108.75	0.16	0.86
1630	850.7	32.17046773	-103.09436829	52.93	97.31	0.15	0.83
1631	851.2	32.17046268	-103.09436774	48.20	88.13	0.13	0.80
1632	851.7	32.17045786	-103.09436691	46.09	84.02	0.16	0.81
1633	852.3	32.17045330	-103.09436570	44.92	80.63	0.15	0.76
1634	852.8	32.17044943	-103.09436411	44.06	78.56	0.13	0.77
1635	853.3	32.17044617	-103.09436216	44.73	78.05	0.09	0.71
1636	853.8	32.17044233	-103.09436080	45.90	79.10	0.08	0.69
1637	854.3	32.17043814	-103.09435983	48.87	83.59	0.13	0.72
1638	854.9	32.17043358	-103.09436006	52.11	87.77	0.12	0.76
1639	855.4	32.17042887	-103.09436084	54.49	92.11	0.18	0.83
1640	855.9	32.17042480	-103.09436183	65.59	99.84	0.20	0.93
1641	856.4	32.17042094	-103.09436288	71.48	105.78	0.13	0.83
1642	857.0	32.17041764	-103.09436289	74.14	103.52	0.11	0.77
1643	857.5	32.17041443	-103.09436273	78.71	104.73	0.14	0.74
1644	858.0	32.17041160	-103.09436383	77.46	104.06	0.11	0.71
1645	858.5	32.17040880	-103.09436494	68.83	101.29	0.10	0.71
1646	859.0	32.17040608	-103.09436371	70.82	103.24	0.12	0.80
1647	859.6	32.17040339	-103.09436263	68.01	103.40	0.13	0.84
1648	860.1	32.17040090	-103.09436256	59.77	97.93	0.07	0.59
1649	860.6	32.17039826	-103.09436296	53.67	90.90	0.05	0.54
1650	861.1	32.17039495	-103.09436525	46.64	81.25	0.06	0.52
1651	861.7	32.17039196	-103.09436800	41.37	68.91	0.03	0.41
1652	862.2	32.17038995	-103.09437161	37.27	63.28	0.05	0.38
1653	862.7	32.17038925	-103.09437548	36.64	61.37	0.06	0.38
1654	863.2	32.17039083	-103.09437970	39.69	64.02	0.05	0.39
1655	863.7	32.17039297	-103.09438325	41.80	65.86	0.06	0.43
1656	864.3	32.17039579	-103.09438600	45.20	69.41	0.07	0.50
1657	864.8	32.17039914	-103.09438769	49.73	74.26	0.08	0.55
1658	865.3	32.17040297	-103.09438850	52.46	78.36	0.09	0.60
1659	865.8	32.17040676	-103.09438881	58.63	83.05	0.12	0.61
1660	866.4	32.17041054	-103.09438882	56.21	80.04	0.24	0.87
1661	866.9	32.17041432	-103.09438932	60.20	78.75	0.11	0.90
1662	867.4	32.17041810	-103.09439004	53.52	81.72	0.15	0.75
1663	867.9	32.17042243	-103.09438981	51.21	82.97	0.14	0.78
1664	868.4	32.17042693	-103.09438934	49.69	85.39	0.14	0.75
1665	869.0	32.17043129	-103.09438908	48.40	84.88	0.12	0.74
1666	869.5	32.17043564	-103.09438886	48.75	84.18	0.12	0.73
1667	870.0	32.17043971	-103.09438923	50.70	87.31	0.14	0.74
1668	870.5	32.17044380	-103.09438959	53.28	90.12	0.12	0.74
1669	871.1	32.17044809	-103.09438911	56.29	93.67	0.09	0.76
1670	871.6	32.17045235	-103.09438863	60.70	101.09	0.14	0.82
1671	872.1	32.17045639	-103.09438809	66.33	110.70	0.12	0.80
1672	872.6	32.17046035	-103.09438764	72.46	120.59	0.10	0.81
1673	873.1	32.17046394	-103.09438747	87.03	139.77	0.11	0.87
1674	873.7	32.17046755	-103.09438743	104.73	158.87	0.12	0.89
1675	874.2	32.17047115	-103.09438766	114.65	152.66	0.13	0.93
1676	874.7	32.17047477	-103.09438720	160.47	112.97	0.12	0.93
1677	875.2	32.17047842	-103.09438568	203.32	124.69	0.11	0.91
1678	875.8	32.17048190	-103.09438544	183.56	160.55	0.10	0.88
1679	876.3	32.17048518	-103.09438661	197.85	166.76	0.10	0.92
1680	876.8	32.17048852	-103.09438741	183.13	155.51	0.12	0.93
1681	877.3	32.17049189	-103.09438793	141.33	141.64	0.15	0.98
1682	877.8	32.17049474	-103.09438915	119.92	164.92	0.16	1.09
1683	878.4	32.17049732	-103.09439076	104.10	187.34	0.16	1.15
1684	878.9	32.17050109	-103.09439107	90.78	177.15	0.13	1.11
1685	879.4	32.17050530	-103.09439090	82.54	157.66	0.12	1.08
1686	879.9	32.17050916	-103.09439096	76.80	144.96	0.14	1.11
1687	880.5	32.17051293	-103.09439108	73.13	135.94	0.13	1.11
1688	881.0	32.17051716	-103.09439119	71.37	131.33	0.12	1.11

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1689	881.5	32.17052144	-103.09439129	73.44	131.25	0.15	1.12
1690	882.0	32.17052569	-103.09439126	77.93	137.31	0.14	1.15
1691	882.5	32.17052989	-103.09439126	83.16	145.47	0.14	1.13
1692	883.1	32.17053359	-103.09439158	93.95	157.73	0.14	1.13
1693	883.6	32.17053725	-103.09439189	109.45	173.28	0.12	1.13
1694	884.1	32.17054071	-103.09439214	120.59	176.64	0.14	1.15
1695	884.6	32.17054432	-103.09439225	173.05	153.44	0.15	1.16
1696	885.2	32.17054846	-103.09439194	196.21	172.58	0.11	1.08
1697	885.7	32.17055275	-103.09439158	211.72	206.91	0.11	0.99
1698	886.2	32.17055734	-103.09439109	191.88	214.30	0.11	0.96
1699	886.7	32.17056159	-103.09439076	142.50	181.80	0.08	0.88
1700	887.2	32.17056536	-103.09439066	107.19	166.76	0.07	0.86
1701	887.8	32.17056924	-103.09439041	85.74	154.81	0.07	0.81
1702	888.3	32.17057323	-103.09439002	72.97	137.23	0.07	0.76
1703	888.8	32.17057705	-103.09438920	62.58	118.59	0.08	0.74
1704	889.3	32.17058076	-103.09438807	56.68	105.43	0.09	0.73
1705	889.9	32.17058479	-103.09438720	52.19	94.84	0.09	0.69
1706	890.4	32.17058897	-103.09438645	47.58	85.39	0.09	0.67
1707	890.9	32.17059265	-103.09438622	43.16	76.99	0.07	0.61
1708	891.4	32.17059614	-103.09438616	40.82	72.58	0.07	0.58
1709	891.9	32.17059979	-103.09438620	39.26	68.67	0.07	0.56
1710	892.5	32.17060345	-103.09438626	37.93	66.21	0.07	0.55
1711	893.0	32.17060625	-103.09438831	37.62	65.27	0.08	0.54
1712	893.5	32.17060894	-103.09439056	37.03	64.34	0.07	0.52
1713	894.0	32.17061139	-103.09439277	36.33	62.70	0.06	0.50
1714	894.6	32.17061398	-103.09439498	36.76	62.73	0.06	0.50
1715	895.1	32.17061792	-103.09439719	36.80	61.84	0.05	0.49
1716	895.6	32.17062169	-103.09439963	35.98	60.27	0.05	0.45
1717	896.1	32.17062456	-103.09440291	36.56	60.59	0.07	0.47
1718	896.6	32.17062678	-103.09440616	36.88	60.63	0.06	0.47
1719	897.2	32.17062713	-103.09440925	36.76	60.66	0.06	0.45
1720	897.7	32.17062635	-103.09441259	37.73	61.45	0.07	0.44
1721	898.2	32.17062347	-103.09441641	37.97	61.02	0.07	0.45
1722	898.7	32.17062001	-103.09441931	39.34	63.32	0.06	0.46
1723	899.3	32.17061577	-103.09442099	42.07	69.34	0.07	0.51
1724	899.8	32.17061126	-103.09442230	44.02	73.59	0.09	0.55
1725	900.3	32.17060650	-103.09442326	47.50	77.15	0.09	0.57
1726	900.8	32.17060200	-103.09442438	50.35	81.21	0.09	0.63
1727	901.3	32.17059765	-103.09442561	51.21	83.52	0.08	0.62
1728	901.9	32.17059300	-103.09442587	53.79	85.66	0.08	0.62
1729	902.4	32.17058822	-103.09442570	57.93	92.89	0.09	0.68
1730	902.9	32.17058368	-103.09442494	64.34	106.64	0.11	0.78
1731	903.4	32.17057921	-103.09442401	69.81	115.78	0.12	0.83
1732	904.0	32.17057499	-103.09442328	75.47	123.40	0.11	0.80
1733	904.5	32.17057081	-103.09442257	96.13	147.66	0.15	0.92
1734	905.0	32.17056646	-103.09442310	118.59	172.15	0.16	0.96
1735	905.5	32.17056209	-103.09442367	144.77	158.83	0.13	0.97
1736	906.0	32.17055755	-103.09442315	203.59	176.60	0.13	1.02
1737	906.6	32.17055300	-103.09442266	221.91	221.88	0.13	1.03
1738	907.1	32.17054825	-103.09442241	200.55	189.41	0.14	1.02
1739	907.6	32.17054345	-103.09442244	160.78	162.89	0.15	1.10
1740	908.1	32.17053853	-103.09442356	125.31	185.51	0.15	1.18
1741	908.7	32.17053385	-103.09442481	104.10	187.03	0.17	1.18
1742	909.2	32.17052983	-103.09442633	90.78	168.79	0.16	1.16
1743	909.7	32.17052574	-103.09442741	82.85	150.82	0.16	1.12
1744	910.2	32.17052153	-103.09442773	80.86	142.23	0.18	1.16
1745	910.7	32.17051737	-103.09442784	80.47	136.95	0.18	1.14
1746	911.3	32.17051327	-103.09442768	83.24	139.14	0.20	1.17
1747	911.8	32.17050938	-103.09442749	90.70	147.27	0.20	1.22
1748	912.3	32.17050566	-103.09442728	111.45	163.67	0.32	1.48
1749	912.8	32.17050148	-103.09442699	209.77	162.62	1.66	1.15
1750	913.4	32.17049703	-103.09442664	245.00	95.39	1.18	-3.70
1751	913.9	32.17049270	-103.09442606	224.84	93.83	0.90	-2.28
1752	914.4	32.17048843	-103.09442539	228.44	193.40	0.32	1.57
1753	914.9	32.17048445	-103.09442495	233.79	233.52	0.17	1.30

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1754	915.4	32.17048053	-103.09442456	269.34	270.70	0.25	1.29
1755	916.0	32.17047672	-103.09442521	246.60	240.04	0.20	1.24
1756	916.5	32.17047293	-103.09442599	240.31	203.20	0.16	1.15
1757	917.0	32.17047047	-103.09442599	255.27	221.41	0.16	1.06
1758	917.5	32.17046803	-103.09442600	258.05	262.81	0.15	1.04
1759	918.1	32.17046468	-103.09442711	225.47	268.32	0.14	0.98
1760	918.6	32.17046130	-103.09442812	188.09	237.34	0.12	0.92
1761	919.1	32.17045768	-103.09442848	143.32	189.49	0.13	0.88
1762	919.6	32.17045390	-103.09442854	107.27	153.32	0.13	0.84
1763	920.1	32.17044951	-103.09442750	85.94	135.98	0.13	0.80
1764	920.7	32.17044514	-103.09442672	69.34	125.35	0.12	0.76
1765	921.2	32.17044077	-103.09442654	57.85	109.06	0.11	0.73
1766	921.7	32.17043664	-103.09442630	50.78	94.49	0.10	0.68
1767	922.2	32.17043286	-103.09442598	45.70	85.59	0.10	0.65
1768	922.8	32.17042895	-103.09442533	45.12	80.66	0.09	0.63
1769	923.3	32.17042489	-103.09442431	45.20	77.70	0.09	0.61
1770	923.8	32.17042063	-103.09442409	45.31	76.80	0.08	0.60
1771	924.3	32.17041620	-103.09442449	43.91	73.87	0.07	0.54
1772	924.8	32.17041186	-103.09442435	43.28	73.40	0.10	0.55
1773	925.4	32.17040755	-103.09442391	43.32	72.97	0.10	0.54
1774	925.9	32.17040360	-103.09442188	43.36	72.34	0.09	0.54
1775	926.4	32.17039980	-103.09441926	42.46	70.63	0.08	0.52
1776	926.9	32.17039555	-103.09441796	39.10	66.88	0.08	0.47
1777	927.5	32.17039119	-103.09441696	36.13	62.50	0.07	0.44
1778	928.0	32.17038683	-103.09441840	33.71	57.73	0.06	0.41
1779	928.5	32.17038247	-103.09442012	31.68	53.48	0.06	0.39
1780	929.0	32.17037921	-103.09442189	30.16	50.90	0.06	0.38
1781	929.5	32.17037612	-103.09442389	29.14	46.88	0.03	0.35
1782	930.1	32.17037483	-103.09442899	27.93	45.82	0.03	0.31
1783	930.6	32.17037411	-103.09443385	26.99	44.57	0.04	0.33
1784	931.1	32.17037645	-103.09443742	27.85	45.35	0.04	0.32
1785	931.6	32.17037905	-103.09444067	27.93	44.45	0.04	0.30
1786	932.2	32.17038248	-103.09444298	29.49	46.80	0.05	0.33
1787	932.7	32.17038628	-103.09444529	31.72	50.70	0.05	0.37
1788	933.2	32.17039089	-103.09444762	33.91	53.83	0.06	0.38
1789	933.7	32.17039546	-103.09444940	35.31	56.29	0.07	0.41
1790	934.2	32.17040001	-103.09445040	36.64	57.50	0.07	0.45
1791	934.8	32.17040471	-103.09445108	38.16	61.84	0.07	0.49
1792	935.3	32.17040957	-103.09445142	39.38	64.49	0.08	0.52
1793	935.8	32.17041429	-103.09445213	38.59	64.10	0.08	0.51
1794	936.3	32.17041889	-103.09445310	39.34	65.90	0.10	0.52
1795	936.9	32.17042321	-103.09445418	40.12	67.54	0.10	0.55
1796	937.4	32.17042739	-103.09445533	41.17	71.91	0.10	0.62
1797	937.9	32.17043155	-103.09445639	42.38	73.13	0.09	0.61
1798	938.4	32.17043571	-103.09445742	43.44	74.26	0.07	0.59
1799	938.9	32.17043981	-103.09445907	45.66	77.50	0.09	0.61
1800	939.5	32.17044391	-103.09446086	49.30	82.38	0.09	0.64
1801	940.0	32.17044790	-103.09446199	55.39	92.38	0.09	0.69
1802	940.5	32.17045190	-103.09446306	62.42	107.03	0.11	0.77
1803	941.0	32.17045641	-103.09446336	71.88	123.63	0.12	0.83
1804	941.6	32.17046082	-103.09446385	77.03	131.45	0.10	0.81
1805	942.1	32.17046422	-103.09446627	84.84	142.62	0.10	0.84
1806	942.6	32.17046760	-103.09446857	99.34	160.00	0.11	0.86
1807	943.1	32.17047060	-103.09447016	110.47	171.02	0.12	0.85
1808	943.6	32.17047394	-103.09447135	138.75	173.13	0.12	0.91
1809	944.2	32.17047816	-103.09447140	195.86	158.75	0.13	0.98
1810	944.7	32.17048219	-103.09447172	247.85	180.47	0.13	0.99
1811	945.2	32.17048583	-103.09447257	287.93	224.57	0.15	1.07
1812	945.7	32.17048957	-103.09447333	284.53	236.02	0.18	1.18
1813	946.3	32.17049344	-103.09447397	242.31	216.45	0.16	1.16
1814	946.8	32.17049708	-103.09447438	218.05	206.72	0.15	1.20
1815	947.3	32.17050049	-103.09447460	198.13	224.69	0.21	1.26
1816	947.8	32.17050424	-103.09447500	185.86	229.81	0.25	1.33
1817	948.3	32.17050819	-103.09447554	171.88	194.26	0.60	1.18
1818	948.9	32.17051264	-103.09447626	157.70	149.88	0.84	0.45

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1819	949.4	32.17051732	-103.09447708	114.61	142.23	0.50	0.54
1820	949.9	32.17052166	-103.09447773	84.69	136.99	0.44	1.38
1821	950.4	32.17052591	-103.09447833	74.53	126.48	0.25	1.42
1822	951.0	32.17053000	-103.09447870	73.71	125.00	0.16	1.27
1823	951.5	32.17053408	-103.09447904	76.88	131.41	0.14	1.08
1824	952.0	32.17053812	-103.09447923	85.39	144.38	0.16	1.07
1825	952.5	32.17054215	-103.09447939	101.13	165.04	0.16	1.12
1826	953.0	32.17054564	-103.09447853	111.64	175.51	0.16	1.09
1827	953.6	32.17054917	-103.09447756	139.61	169.06	0.16	1.10
1828	954.1	32.17055302	-103.09447556	205.27	162.81	0.15	1.12
1829	954.6	32.17055690	-103.09447377	254.53	191.52	0.14	1.10
1830	955.1	32.17056091	-103.09447273	298.13	219.18	0.16	1.09
1831	955.7	32.17056507	-103.09447172	291.17	220.86	0.19	1.01
1832	956.2	32.17056963	-103.09447079	238.09	202.46	0.17	0.99
1833	956.7	32.17057400	-103.09446962	183.48	195.20	0.32	1.26
1834	957.2	32.17057809	-103.09446801	141.52	194.84	0.29	1.23
1835	957.7	32.17058246	-103.09446671	114.34	191.17	0.17	1.16
1836	958.3	32.17058718	-103.09446581	100.00	169.77	0.14	0.96
1837	958.8	32.17059163	-103.09446492	88.67	148.09	0.11	0.86
1838	959.3	32.17059587	-103.09446406	79.10	130.55	0.24	0.92
1839	959.8	32.17060033	-103.09446308	73.59	117.85	0.14	0.88
1840	960.4	32.17060496	-103.09446202	68.36	111.76	0.10	0.79
1841	960.9	32.17060967	-103.09446136	63.98	107.31	0.11	0.73
1842	961.4	32.17061443	-103.09446085	59.22	103.83	0.13	0.70
1843	961.9	32.17061864	-103.09446104	54.45	96.91	0.13	0.67
1844	962.4	32.17062270	-103.09446142	49.84	88.79	0.10	0.60
1845	963.0	32.17062737	-103.09446113	48.59	84.96	0.09	0.56
1846	963.5	32.17063210	-103.09446076	47.23	79.22	0.08	0.52
1847	964.0	32.17063659	-103.09445955	43.16	73.09	0.08	0.49
1848	964.5	32.17064104	-103.09445836	39.10	68.01	0.07	0.44
1849	965.1	32.17064487	-103.09445842	38.16	65.59	0.08	0.45
1850	965.6	32.17064868	-103.09445863	36.95	63.24	0.07	0.42
1851	966.1	32.17065246	-103.09445986	34.49	58.95	0.08	0.40
1852	966.6	32.17065601	-103.09446170	33.83	57.38	0.09	0.41
1853	967.1	32.17065872	-103.09446581	33.75	56.06	0.08	0.39
1854	967.7	32.17066038	-103.09447010	33.79	56.33	0.07	0.38
1855	968.2	32.17065961	-103.09447475	33.83	56.13	0.08	0.38
1856	968.7	32.17065819	-103.09447925	33.95	57.38	0.08	0.37
1857	969.2	32.17065577	-103.09448346	35.23	59.14	0.08	0.40
1858	969.8	32.17065307	-103.09448767	36.80	61.06	0.08	0.40
1859	970.3	32.17065006	-103.09449186	38.40	63.24	0.08	0.43
1860	970.8	32.17064698	-103.09449529	40.27	66.64	0.11	0.43
1861	971.3	32.17064382	-103.09449812	42.70	70.55	0.12	0.48
1862	971.8	32.17064020	-103.09450055	46.33	75.78	0.09	0.51
1863	972.4	32.17063632	-103.09450274	52.66	84.69	0.09	0.57
1864	972.9	32.17063300	-103.09450492	61.60	96.84	0.09	0.56
1865	973.4	32.17062990	-103.09450711	72.70	111.72	0.08	0.57
1866	973.9	32.17062633	-103.09450969	89.41	122.46	0.08	0.60
1867	974.5	32.17062267	-103.09451236	114.96	129.92	0.11	0.62
1868	975.0	32.17061928	-103.09451262	138.20	159.88	0.11	0.64
1869	975.5	32.17061593	-103.09451261	150.08	175.63	0.10	0.65
1870	976.0	32.17061265	-103.09451032	148.52	179.02	0.11	0.66
1871	976.5	32.17060937	-103.09450802	159.92	183.13	0.13	0.73
1872	977.1	32.17060585	-103.09450618	187.58	176.64	0.10	0.78
1873	977.6	32.17060239	-103.09450436	218.01	187.73	0.09	0.79
1874	978.1	32.17059931	-103.09450267	246.76	224.88	0.10	0.88
1875	978.6	32.17059610	-103.09450096	267.85	248.52	0.12	0.98
1876	979.2	32.17059250	-103.09449920	278.75	237.42	0.15	0.98
1877	979.7	32.17058875	-103.09449789	303.79	239.30	0.15	1.08
1878	980.2	32.17058474	-103.09449756	313.83	277.27	0.13	1.11
1879	980.7	32.17058078	-103.09449727	326.91	285.04	0.13	1.08
1880	981.2	32.17057693	-103.09449706	342.50	287.34	0.14	1.09
1881	981.8	32.17057294	-103.09449691	335.86	306.60	0.14	1.07
1882	982.3	32.17056883	-103.09449680	343.24	331.60	0.15	1.12
1883	982.8	32.17056477	-103.09449721	314.14	320.39	0.15	1.17

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1884	983.3	32.17056077	-103.09449801	286.91	277.77	0.16	1.17
1885	983.9	32.17055678	-103.09449833	253.24	226.17	0.17	1.13
1886	984.4	32.17055280	-103.09449841	176.64	174.73	0.16	1.09
1887	984.9	32.17054854	-103.09449880	132.77	163.16	0.14	1.04
1888	985.4	32.17054418	-103.09449929	104.30	168.16	0.15	1.01
1889	985.9	32.17053974	-103.09450038	82.46	158.09	0.16	1.00
1890	986.5	32.17053529	-103.09450159	71.64	138.20	0.15	0.95
1891	987.0	32.17053065	-103.09450184	67.07	124.61	0.14	0.92
1892	987.5	32.17052599	-103.09450198	68.16	119.61	0.12	0.90
1893	988.0	32.17052152	-103.09450120	75.90	111.37	0.10	0.79
1894	988.6	32.17051704	-103.09450048	105.78	93.56	0.62	0.81
1895	989.1	32.17051231	-103.09450042	114.61	110.43	0.26	1.12
1896	989.6	32.17050744	-103.09450044	118.13	143.09	0.15	0.78
1897	990.1	32.17050236	-103.09450082	158.20	128.59	0.16	0.93
1898	990.6	32.17049745	-103.09450079	161.95	137.50	0.19	1.08
1899	991.2	32.17049319	-103.09449961	174.81	178.79	0.15	1.16
1900	991.7	32.17048895	-103.09449853	189.10	260.31	0.14	1.05
1901	992.2	32.17048473	-103.09449764	176.84	257.73	0.12	0.95
1902	992.7	32.17048049	-103.09449730	169.57	199.30	0.10	0.91
1903	993.3	32.17047620	-103.09449767	164.02	165.20	0.09	0.87
1904	993.8	32.17047159	-103.09449797	153.20	165.23	0.11	0.86
1905	994.3	32.17046667	-103.09449821	142.31	184.81	0.11	0.83
1906	994.8	32.17046189	-103.09449778	127.93	180.66	0.09	0.76
1907	995.3	32.17045720	-103.09449692	112.46	145.27	0.10	0.76
1908	995.9	32.17045250	-103.09449627	104.69	130.70	0.07	0.70
1909	996.4	32.17044777	-103.09449571	93.91	138.79	0.11	0.67
1910	996.9	32.17044327	-103.09449483	72.93	130.70	0.11	0.64
1911	997.4	32.17043881	-103.09449385	56.09	109.38	0.09	0.58
1912	998.0	32.17043452	-103.09449104	51.41	97.46	0.08	0.58
1913	998.5	32.17043027	-103.09448790	46.91	84.53	0.06	0.57
1914	999.0	32.17042633	-103.09448662	41.21	74.10	0.05	0.54
1915	999.5	32.17042239	-103.09448553	37.93	67.58	0.05	0.48
1916	1000.0	32.17041803	-103.09448763	37.58	66.25	0.06	0.47
1917	1000.6	32.17041368	-103.09448975	37.38	64.69	0.07	0.45
1918	1001.1	32.17040957	-103.09449199	34.57	59.22	0.05	0.41
1919	1001.6	32.17040558	-103.09449429	30.27	51.29	0.06	0.31
1920	1002.1	32.17040207	-103.09449682	27.54	47.07	0.07	0.26
1921	1002.7	32.17039882	-103.09449977	27.07	45.00	0.06	0.27
1922	1003.2	32.17039622	-103.09450382	27.42	45.35	0.06	0.31
1923	1003.7	32.17039482	-103.09450773	28.48	46.48	0.07	0.38
1924	1004.2	32.17039551	-103.09451142	30.00	47.27	0.01	0.40
1925	1004.7	32.17039710	-103.09451470	31.84	49.26	0.01	0.35
1926	1005.3	32.17039980	-103.09451746	36.80	56.41	0.02	0.36
1927	1005.8	32.17040340	-103.09451876	46.84	68.71	0.04	0.36
1928	1006.3	32.17040778	-103.09451877	63.91	83.71	0.04	0.36
1929	1006.8	32.17041178	-103.09451751	90.00	91.09	0.05	0.39
1930	1007.4	32.17041553	-103.09451548	112.85	94.10	0.04	0.40
1931	1007.9	32.17041979	-103.09451465	125.86	110.04	0.05	0.44
1932	1008.4	32.17042424	-103.09451433	122.62	118.24	0.07	0.45
1933	1008.9	32.17042849	-103.09451426	102.77	118.40	0.08	0.48
1934	1009.4	32.17043269	-103.09451425	106.91	151.64	0.09	0.54
1935	1010.0	32.17043675	-103.09451439	107.70	164.02	0.08	0.55
1936	1010.5	32.17044078	-103.09451456	111.21	149.65	0.07	0.54
1937	1011.0	32.17044465	-103.09451458	113.91	125.59	0.07	0.54
1938	1011.5	32.17044852	-103.09451461	121.33	111.25	0.07	0.54
1939	1012.1	32.17045251	-103.09451474	126.13	132.42	0.09	0.57
1940	1012.6	32.17045657	-103.09451483	113.05	137.97	0.09	0.59
1941	1013.1	32.17046115	-103.09451460	97.58	129.84	0.09	0.61
1942	1013.6	32.17046568	-103.09451427	97.23	129.10	0.12	0.66
1943	1014.1	32.17047004	-103.09451356	93.48	147.34	0.11	0.69
1944	1014.7	32.17047430	-103.09451317	82.34	146.95	0.10	0.70
1945	1015.2	32.17047827	-103.09451358	76.45	139.49	0.10	0.72
1946	1015.7	32.17048239	-103.09451402	72.89	126.45	0.10	0.68
1947	1016.2	32.17048672	-103.09451453	70.90	121.60	0.11	0.72
1948	1016.8	32.17049125	-103.09451522	64.88	116.25	0.10	0.74

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1949	1017.3	32.17049598	-103.09451611	58.83	106.95	0.10	0.75
1950	1017.8	32.17050071	-103.09451689	57.81	103.98	0.13	0.75
1951	1018.3	32.17050542	-103.09451757	52.89	97.73	0.15	0.74
1952	1018.8	32.17050954	-103.09451852	51.29	93.59	0.12	0.74
1953	1019.4	32.17051335	-103.09451960	52.46	93.59	0.11	0.73
1954	1019.9	32.17051703	-103.09452038	52.11	91.95	0.09	0.72
1955	1020.4	32.17052065	-103.09452104	53.36	90.04	0.07	0.67
1956	1020.9	32.17052436	-103.09451970	56.68	94.30	0.08	0.69
1957	1021.5	32.17052808	-103.09451789	64.30	103.24	0.07	0.70
1958	1022.0	32.17053187	-103.09451623	79.02	115.08	0.09	0.72
1959	1022.5	32.17053567	-103.09451460	100.74	118.79	0.10	0.77
1960	1023.0	32.17053941	-103.09451300	131.84	123.75	0.10	0.79
1961	1023.5	32.17054313	-103.09451142	182.15	136.29	0.13	0.88
1962	1024.1	32.17054655	-103.09451004	215.00	171.60	0.12	0.91
1963	1024.6	32.17055003	-103.09450886	219.57	198.87	0.11	0.92
1964	1025.1	32.17055390	-103.09450874	256.06	234.41	0.13	0.96
1965	1025.6	32.17055773	-103.09450844	257.85	265.23	0.12	0.96
1966	1026.2	32.17056141	-103.09450753	250.16	268.87	0.11	0.97
1967	1026.7	32.17056473	-103.09450692	257.50	267.19	0.11	0.96
1968	1027.2	32.17056731	-103.09450694	256.91	255.43	0.12	1.01
1969	1027.7	32.17056962	-103.09450704	248.13	246.52	0.11	0.96
1970	1028.2	32.17057157	-103.09450726	242.66	255.51	0.12	0.97
1971	1028.8	32.17057355	-103.09450709	238.48	258.24	0.12	0.97
1972	1029.3	32.17057558	-103.09450650	225.59	252.70	0.11	0.91
1973	1029.8	32.17057806	-103.09450711	195.35	241.45	0.08	0.89
1974	1030.3	32.17058088	-103.09450860	189.69	239.81	0.13	0.96
1975	1030.9	32.17058447	-103.09450995	170.86	250.35	0.12	0.97
1976	1031.4	32.17058847	-103.09451122	156.41	239.69	0.11	0.91
1977	1031.9	32.17059195	-103.09451345	152.97	233.52	0.12	0.85
1978	1032.4	32.17059527	-103.09451600	139.73	222.46	0.11	0.83
1979	1032.9	32.17059793	-103.09451931	130.66	208.40	0.09	0.80
1980	1033.5	32.17060045	-103.09452276	151.02	194.34	0.09	0.81
1981	1034.0	32.17060380	-103.09452489	169.57	179.34	0.08	0.72
1982	1034.5	32.17060723	-103.09452689	171.95	176.21	0.06	0.65
1983	1035.0	32.17061089	-103.09452849	196.76	190.20	0.14	0.68
1984	1035.6	32.17061455	-103.09452985	207.11	191.68	0.11	0.64
1985	1036.1	32.17061834	-103.09452883	191.06	185.98	0.08	0.58
1986	1036.6	32.17062226	-103.09452766	172.34	175.08	0.08	0.55
1987	1037.1	32.17062642	-103.09452593	141.02	147.42	0.08	0.51
1988	1037.6	32.17063074	-103.09452454	92.81	115.51	0.07	0.47
1989	1038.2	32.17063536	-103.09452417	67.58	104.45	0.09	0.47
1990	1038.7	32.17064001	-103.09452400	53.59	94.18	0.10	0.46
1991	1039.2	32.17064469	-103.09452420	42.70	76.25	0.07	0.39
1992	1039.7	32.17064920	-103.09452476	37.11	65.12	0.06	0.37
1993	1040.3	32.17065342	-103.09452582	34.53	60.00	0.05	0.36
1994	1040.8	32.17065776	-103.09452727	32.89	56.25	0.04	0.31
1995	1041.3	32.17066221	-103.09452908	30.55	51.68	0.06	0.33
1996	1041.8	32.17066547	-103.09453216	28.67	49.02	0.06	0.31
1997	1042.3	32.17066792	-103.09453610	28.28	47.70	0.08	0.31
1998	1042.9	32.17066973	-103.09454030	26.17	44.61	0.07	0.30
1999	1043.4	32.17067124	-103.09454464	26.33	44.06	0.07	0.30
2000	1043.9	32.17067088	-103.09454805	27.15	44.57	0.07	0.28
2001	1044.4	32.17066996	-103.09455116	28.28	45.08	0.05	0.30
2002	1045.0	32.17067016	-103.09455341	28.44	45.35	0.04	0.29
2003	1045.5	32.17067054	-103.09455551	27.58	43.91	0.03	0.27
2004	1046.0	32.17067308	-103.09455514	26.84	43.28	0.02	0.27
2005	1046.5	32.17067576	-103.09455463	25.04	40.12	0.02	0.21
2006	1047.0	32.17067865	-103.09455515	23.91	38.36	0.04	0.24
2007	1047.6	32.17068150	-103.09455567	23.20	36.95	0.05	0.27
2008	1048.1	32.17068399	-103.09455624	22.70	36.56	0.04	0.25
2009	1048.6	32.17068632	-103.09455725	22.89	36.33	0.04	0.25
2010	1049.1	32.17068802	-103.09456012	23.01	36.33	0.05	0.23
2011	1049.6	32.17068855	-103.09456294	23.01	35.63	0.03	0.22
2012	1050.2	32.17068592	-103.09456560	23.36	35.66	0.04	0.23
2013	1050.7	32.17068297	-103.09456816	24.41	36.60	0.05	0.25

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2014	1051.2	32.17067945	-103.09457052	25.98	39.34	0.04	0.26
2015	1051.7	32.17067579	-103.09457291	27.50	42.42	0.04	0.26
2016	1052.3	32.17067200	-103.09457531	28.91	43.56	0.04	0.25
2017	1052.8	32.17066786	-103.09457702	29.61	44.88	0.04	0.25
2018	1053.3	32.17066345	-103.09457810	30.74	47.81	0.05	0.28
2019	1053.8	32.17065880	-103.09457860	32.73	52.42	0.03	0.26
2020	1054.3	32.17065399	-103.09457873	36.88	58.01	0.04	0.30
2021	1054.9	32.17064931	-103.09457903	43.16	66.29	0.04	0.29
2022	1055.4	32.17064471	-103.09457939	54.18	73.56	0.08	0.35
2023	1055.9	32.17064028	-103.09458102	90.16	75.66	0.06	0.41
2024	1056.4	32.17063590	-103.09458299	123.59	93.71	0.05	0.38
2025	1057.0	32.17063168	-103.09458414	156.88	123.48	0.09	0.40
2026	1057.5	32.17062747	-103.09458517	164.88	138.71	0.07	0.41
2027	1058.0	32.17062300	-103.09458560	146.60	134.96	0.06	0.41
2028	1058.5	32.17061852	-103.09458601	128.71	123.98	0.07	0.38
2029	1059.1	32.17061389	-103.09458661	97.19	110.47	0.08	0.41
2030	1059.6	32.17060932	-103.09458719	70.55	101.29	0.10	0.46
2031	1060.1	32.17060508	-103.09458757	59.81	100.43	0.07	0.48
2032	1060.6	32.17060088	-103.09458782	51.09	90.12	0.03	0.42
2033	1061.1	32.17059672	-103.09458759	49.34	85.55	0.03	0.42
2034	1061.7	32.17059250	-103.09458742	50.55	84.02	0.03	0.40
2035	1062.2	32.17058824	-103.09458738	57.77	89.30	0.04	0.41
2036	1062.7	32.17058387	-103.09458761	64.69	90.63	0.04	0.41
2037	1063.2	32.17057937	-103.09458831	86.95	77.70	0.02	0.38
2038	1063.8	32.17057457	-103.09458950	118.63	93.63	0.04	0.38
2039	1064.3	32.17056939	-103.09459126	94.34	86.25	0.05	0.39
2040	1064.8	32.17056431	-103.09459215	66.41	72.07	0.05	0.40
2041	1065.3	32.17055927	-103.09459232	52.19	77.89	0.05	0.38
2042	1065.8	32.17055478	-103.09459237	44.69	75.55	0.07	0.40
2043	1066.4	32.17055058	-103.09459235	41.72	70.55	0.06	0.42
2044	1066.9	32.17054672	-103.09459360	41.84	67.15	0.04	0.41
2045	1067.4	32.17054299	-103.09459534	39.96	64.45	0.03	0.38
2046	1067.9	32.17053858	-103.09459671	38.52	63.83	0.05	0.38
2047	1068.4	32.17053400	-103.09459801	38.28	63.48	0.04	0.41
2048	1069.0	32.17052925	-103.09459823	37.70	61.60	0.03	0.39
2049	1069.5	32.17052446	-103.09459831	37.93	62.31	0.04	0.38
2050	1070.0	32.17052024	-103.09459952	36.91	62.03	0.05	0.40
2051	1070.5	32.17051611	-103.09460085	36.60	60.39	0.06	0.38
2052	1071.1	32.17051302	-103.09460359	36.02	60.20	0.05	0.41
2053	1071.6	32.17051004	-103.09460651	35.23	58.28	0.03	0.37
2054	1072.1	32.17050768	-103.09461036	34.22	55.94	0.03	0.36
2055	1072.6	32.17050611	-103.09461443	33.24	54.34	0.01	0.36
2056	1073.2	32.17050716	-103.09461919	32.27	52.34	0.00	0.29
2057	1073.7	32.17050903	-103.09462314	32.19	51.25	0.02	0.30
2058	1074.2	32.17051271	-103.09462535	31.84	50.82	0.03	0.32
2059	1074.7	32.17051680	-103.09462680	32.38	50.47	0.03	0.32
2060	1075.2	32.17052150	-103.09462714	33.09	52.19	0.03	0.33
2061	1075.8	32.17052613	-103.09462727	32.97	52.81	0.02	0.31
2062	1076.3	32.17053071	-103.09462716	33.36	53.44	0.09	0.37
2063	1076.8	32.17053555	-103.09462690	33.52	52.54	0.07	0.39
2064	1077.3	32.17054059	-103.09462652	33.09	51.09	0.03	0.34
2065	1077.9	32.17054553	-103.09462575	32.70	50.51	0.09	0.36
2066	1078.4	32.17055038	-103.09462478	32.38	49.73	0.05	0.38
2067	1078.9	32.17055503	-103.09462358	31.76	49.30	0.05	0.37
2068	1079.4	32.17055960	-103.09462229	31.60	50.12	0.08	0.36
2069	1079.9	32.17056379	-103.09462068	32.07	50.16	0.03	0.37
2070	1080.5	32.17056788	-103.09461900	33.28	51.68	0.05	0.35
2071	1081.0	32.17057143	-103.09461728	36.91	55.90	0.04	0.34
2072	1081.5	32.17057492	-103.09461556	45.86	64.53	0.00	0.29
2073	1082.0	32.17057794	-103.09461510	67.19	72.42	-0.08	-0.08
2074	1082.5	32.17058088	-103.09461460	63.91	51.33	0.27	-0.10
2075	1083.1	32.17058315	-103.09461291	66.33	35.35	0.53	0.48
2076	1083.6	32.17058510	-103.09461148	80.86	38.79	0.17	0.76
2077	1084.1	32.17058538	-103.09461140	83.28	39.06	0.05	0.76
2078	1084.6	32.17058567	-103.09461141	80.35	39.96	0.02	0.71

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2079	1085.2	32.17058597	-103.09461171	75.43	45.74	0.03	0.65
2080	1085.7	32.17058713	-103.09461154	70.90	51.95	0.04	0.57
2081	1086.2	32.17059000	-103.09461046	67.27	61.37	0.02	0.42
2082	1086.7	32.17059349	-103.09461004	76.37	79.18	0.04	0.38
2083	1087.2	32.17059780	-103.09461052	84.84	89.49	0.07	0.41
2084	1087.8	32.17060203	-103.09461107	105.86	88.67	0.03	0.43
2085	1088.3	32.17060616	-103.09461169	144.92	93.63	0.05	0.40
2086	1088.8	32.17061035	-103.09461222	164.57	111.41	0.04	0.40
2087	1089.3	32.17061456	-103.09461270	164.30	133.32	0.03	0.37
2088	1089.9	32.17061928	-103.09461440	182.85	160.27	0.06	0.36
2089	1090.4	32.17062422	-103.09461668	186.95	177.07	0.06	0.39
2090	1090.9	32.17062821	-103.09461929	160.43	161.84	0.04	0.34
2091	1091.4	32.17063190	-103.09462200	141.60	147.34	0.05	0.34
2092	1091.9	32.17063619	-103.09462501	109.81	112.23	0.05	0.29
2093	1092.5	32.17064060	-103.09462808	67.50	79.96	0.05	0.27
2094	1093.0	32.17064551	-103.09462817	39.77	65.00	0.03	0.26
2095	1093.5	32.17065045	-103.09462802	30.20	51.33	0.02	0.23
2096	1094.0	32.17065527	-103.09462763	25.39	41.80	0.03	0.23
2097	1094.6	32.17066009	-103.09462736	23.44	37.27	0.02	0.22
2098	1095.1	32.17066490	-103.09462807	22.27	33.79	0.02	0.22
2099	1095.6	32.17066964	-103.09462878	19.88	29.96	0.01	0.22
2100	1096.1	32.17067398	-103.09462947	17.34	27.23	0.05	0.23
2101	1096.6	32.17067832	-103.09462989	16.56	25.16	0.07	0.23
2102	1097.2	32.17068260	-103.09462960	16.60	24.73	0.04	0.21
2103	1097.7	32.17068689	-103.09462932	16.76	24.10	0.04	0.21
2104	1098.2	32.17069116	-103.09462905	16.09	23.05	0.03	0.23
2105	1098.7	32.17069566	-103.09462850	16.02	22.34	0.03	0.20
2106	1099.3	32.17070044	-103.09462760	16.02	21.91	0.04	0.21
2107	1099.8	32.17070523	-103.09462695	15.20	20.39	0.04	0.21
2108	1100.3	32.17071003	-103.09462652	14.84	19.96	0.04	0.19
2109	1100.8	32.17071458	-103.09462681	14.69	20.12	0.05	0.19
2110	1101.4	32.17071899	-103.09462758	14.45	20.47	0.04	0.22
2111	1101.9	32.17072134	-103.09463050	14.45	19.22	0.04	0.20
2112	1102.4	32.17072282	-103.09463433	14.30	18.36	0.03	0.21
2113	1102.9	32.17072210	-103.09463942	14.30	18.09	0.04	0.19
2114	1103.4	32.17072077	-103.09464487	13.48	18.48	0.05	0.19
2115	1104.0	32.17071845	-103.09464982	13.98	18.05	0.04	0.18
2116	1104.5	32.17071598	-103.09465470	14.06	17.97	0.03	0.18
2117	1105.0	32.17071177	-103.09465839	14.30	18.40	0.05	0.19
2118	1105.5	32.17070748	-103.09466199	14.30	19.30	0.04	0.23
2119	1106.0	32.17070339	-103.09466477	14.06	19.53	0.06	0.24
2120	1106.6	32.17069933	-103.09466752	15.04	19.02	0.03	0.23
2121	1107.1	32.17069545	-103.09466999	15.20	19.77	0.02	0.18
2122	1107.6	32.17069162	-103.09467258	15.63	20.16	0.03	0.19
2123	1108.1	32.17068801	-103.09467566	15.70	20.55	0.04	0.20
2124	1108.7	32.17068470	-103.09467873	16.09	20.78	0.04	0.20
2125	1109.2	32.17068228	-103.09468162	15.70	20.51	0.04	0.20
2126	1109.7	32.17067945	-103.09468419	16.45	21.13	0.02	0.20
2127	1110.2	32.17067599	-103.09468616	16.68	20.82	0.05	0.22
2128	1110.7	32.17067254	-103.09468908	17.07	20.86	0.05	0.23
2129	1111.3	32.17066909	-103.09469313	17.03	21.80	0.03	0.21
2130	1111.8	32.17066531	-103.09469664	16.80	21.41	0.06	0.23
2131	1112.3	32.17066127	-103.09469968	16.99	21.29	0.04	0.22
2132	1112.8	32.17065750	-103.09470141	16.64	21.88	0.06	0.21
2133	1113.4	32.17065390	-103.09470238	16.56	22.07	0.05	0.21
2134	1113.9	32.17065010	-103.09470160	15.74	21.72	0.05	0.16
2135	1114.4	32.17064623	-103.09470011	16.13	22.07	0.03	0.17
2136	1114.9	32.17064375	-103.09470238	16.09	21.76	0.02	0.18
2137	1115.4	32.17064161	-103.09470556	16.06	21.60	0.05	0.16
2138	1116.0	32.17063953	-103.09470823	15.23	21.37	0.06	0.15
2139	1116.5	32.17063747	-103.09471082	15.70	21.29	0.06	0.18
2140	1117.0	32.17063404	-103.09471305	16.33	21.21	0.03	0.15
2141	1117.5	32.17063055	-103.09471517	16.29	21.72	0.04	0.15
2142	1118.1	32.17062665	-103.09471563	16.25	22.07	0.05	0.18
2143	1118.6	32.17062283	-103.09471591	17.23	22.70	0.04	0.17

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2144	1119.1	32.17061943	-103.09471516	18.13	23.63	0.05	0.19
2145	1119.6	32.17061614	-103.09471463	22.15	25.94	0.05	0.20
2146	1120.1	32.17061319	-103.09471481	25.12	26.17	0.02	0.19
2147	1120.7	32.17061012	-103.09471569	23.91	20.59	0.01	0.18
2148	1121.2	32.17060676	-103.09471811	24.14	19.14	0.01	0.17
2149	1121.7	32.17060334	-103.09472033	19.84	21.88	0.02	0.16
2150	1122.2	32.17059983	-103.09472226	16.80	22.77	0.04	0.18
2151	1122.8	32.17059603	-103.09472433	15.86	21.29	0.04	0.20
2152	1123.3	32.17059193	-103.09472653	15.04	19.81	0.02	0.17
2153	1123.8	32.17058754	-103.09472839	15.00	19.45	0.03	0.18
2154	1124.3	32.17058295	-103.09472999	14.88	19.61	0.02	0.18
2155	1124.8	32.17057850	-103.09473019	14.30	19.06	0.04	0.18
2156	1125.4	32.17057412	-103.09472964	14.45	19.26	0.04	0.19
2157	1125.9	32.17057031	-103.09472762	14.49	19.22	0.03	0.17
2158	1126.4	32.17056669	-103.09472508	14.57	19.06	0.04	0.19
2159	1126.9	32.17056269	-103.09472216	14.81	18.98	0.03	0.21
2160	1127.5	32.17055862	-103.09471918	14.92	19.81	0.04	0.17
2161	1128.0	32.17055500	-103.09471601	14.88	19.65	0.04	0.19
2162	1128.5	32.17055141	-103.09471282	15.04	20.04	0.04	0.20
2163	1129.0	32.17054898	-103.09471007	15.12	20.70	0.05	0.21
2164	1129.6	32.17054657	-103.09470731	15.12	20.51	0.04	0.22
2165	1130.1	32.17054397	-103.09470435	15.39	21.02	0.03	0.19
2166	1130.6	32.17054150	-103.09470108	15.51	21.37	0.03	0.19
2167	1131.1	32.17053993	-103.09469686	15.66	22.19	0.04	0.19
2168	1131.6	32.17053897	-103.09469258	16.29	23.28	0.02	0.19
2169	1132.2	32.17053991	-103.09468841	16.99	23.95	0.03	0.18
2170	1132.7	32.17054148	-103.09468441	17.11	24.81	0.03	0.21
2171	1133.2	32.17054429	-103.09468074	17.23	24.88	0.03	0.19
2172	1133.7	32.17054761	-103.09467791	17.77	26.02	0.03	0.20
2173	1134.2	32.17055161	-103.09467620	18.24	27.11	0.04	0.21
2174	1134.8	32.17055530	-103.09467571	18.13	26.68	0.04	0.20
2175	1135.3	32.17055868	-103.09467641	17.77	26.68	0.05	0.22
2176	1135.8	32.17056152	-103.09467606	17.34	26.02	0.03	0.22
2177	1136.3	32.17056400	-103.09467498	17.54	25.35	0.02	0.21
2178	1136.9	32.17056613	-103.09467194	18.48	26.76	0.03	0.20
2179	1137.4	32.17056808	-103.09466797	19.41	28.24	0.04	0.22
2180	1137.9	32.17056935	-103.09466349	21.13	30.82	0.04	0.23
2181	1138.4	32.17057042	-103.09465883	21.84	32.34	0.03	0.24
2182	1139.0	32.17057271	-103.09465571	22.70	32.73	0.02	0.21
2183	1139.5	32.17057522	-103.09465287	23.16	34.38	0.04	0.22
2184	1140.0	32.17057850	-103.09465159	23.13	35.27	0.05	0.23
2185	1140.5	32.17058186	-103.09465045	24.30	38.16	0.06	0.24
2186	1141.0	32.17058589	-103.09465119	26.29	39.53	0.05	0.24
2187	1141.6	32.17058981	-103.09465192	31.91	42.89	0.04	0.24
2188	1142.1	32.17059268	-103.09465250	38.20	38.87	0.05	0.27
2189	1142.6	32.17059563	-103.09465244	66.45	33.59	0.03	0.27
2190	1143.1	32.17059895	-103.09464963	85.78	53.48	0.05	0.23
2191	1143.6	32.17060203	-103.09464706	114.38	79.26	0.03	0.23
2192	1144.2	32.17060442	-103.09464518	128.48	89.18	0.05	0.29
2193	1144.7	32.17060670	-103.09464430	130.43	88.71	0.04	0.28
2194	1145.2	32.17060876	-103.09464523	131.48	87.46	0.04	0.26
2195	1145.7	32.17061139	-103.09464704	134.26	94.45	0.03	0.24
2196	1146.3	32.17061473	-103.09464994	139.22	93.52	-0.01	0.21
2197	1146.8	32.17061774	-103.09465245	133.87	84.92	0.04	0.23
2198	1147.3	32.17062045	-103.09465460	114.06	75.20	0.03	0.24
2199	1147.8	32.17062224	-103.09465735	88.83	63.32	0.03	0.22
2200	1148.3	32.17062344	-103.09466046	73.52	47.97	0.02	0.21
2201	1148.9	32.17062288	-103.09466403	59.73	46.68	0.02	0.20
2202	1149.4	32.17062154	-103.09466781	45.16	55.78	0.02	0.17
2203	1149.9	32.17062027	-103.09467055	36.29	52.27	-0.01	0.16
2204	1150.4	32.17061904	-103.09467298	32.46	37.27	-0.02	0.13
2205	1151.0	32.17062002	-103.09467262	39.84	27.38	-0.04	0.13
2206	1151.5	32.17062133	-103.09467184	44.30	28.71	-0.02	0.16
2207	1152.0	32.17062302	-103.09466909	48.24	30.00	-0.01	0.19
2208	1152.5	32.17062466	-103.09466627	52.73	36.76	0.00	0.20

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2209	1153.1	32.17062484	-103.09466383	52.89	51.84	0.01	0.22
2210	1153.6	32.17062462	-103.09466137	67.34	71.52	0.05	0.24
2211	1154.1	32.17062162	-103.09465876	81.91	76.45	0.07	0.26
2212	1154.6	32.17061859	-103.09465612	113.32	79.34	0.07	0.23
2213	1155.1	32.17061544	-103.09465338	134.22	90.98	0.04	0.23
2214	1155.7	32.17061303	-103.09465057	138.36	103.24	0.03	0.23
2215	1156.2	32.17061242	-103.09464774	145.63	116.48	0.05	0.27
2216	1156.7	32.17061258	-103.09464456	152.81	121.68	0.03	0.28
2217	1157.2	32.17061400	-103.09464085	145.04	119.34	0.02	0.26
2218	1157.7	32.17061573	-103.09463709	143.20	118.95	0.02	0.31
2219	1158.3	32.17061782	-103.09463325	134.77	127.11	0.01	0.30
2220	1158.8	32.17062039	-103.09463117	127.62	133.67	0.00	0.29
2221	1159.3	32.17062335	-103.09463053	135.47	137.54	-0.01	0.29
2222	1159.8	32.17062399	-103.09463027	139.69	137.07	-0.04	0.31
2223	1160.4	32.17062330	-103.09463023	128.28	131.99	-0.05	0.28
2224	1160.9	32.17062314	-103.09462824	134.57	137.19	-0.06	0.25
2225	1161.4	32.17062320	-103.09462549	153.79	149.57	-0.03	0.30
2226	1161.9	32.17062196	-103.09462251	155.47	153.36	-0.01	0.29
2227	1162.5	32.17062042	-103.09461947	143.56	156.09	0.01	0.27
2228	1163.0	32.17062045	-103.09461564	171.99	174.06	0.05	0.35
2229	1163.5	32.17062067	-103.09461171	171.56	172.31	0.04	0.37
2230	1164.0	32.17062175	-103.09460867	160.27	157.77	0.03	0.36
2231	1164.5	32.17062280	-103.09460562	161.21	151.25	0.04	0.37
2232	1165.1	32.17062289	-103.09460229	149.96	140.51	0.02	0.35
2233	1165.6	32.17062283	-103.09459894	138.44	127.66	0.01	0.29
2234	1166.1	32.17062192	-103.09459547	127.77	133.83	0.03	0.36
2235	1166.6	32.17062066	-103.09459228	115.55	144.02	0.04	0.39
2236	1167.1	32.17061824	-103.09459002	99.73	136.37	0.04	0.39
2237	1167.7	32.17061640	-103.09458760	100.27	125.63	0.04	0.39
2238	1168.2	32.17061584	-103.09458483	98.28	113.87	0.04	0.37
2239	1168.7	32.17061636	-103.09458314	106.72	114.41	0.03	0.34
2240	1169.2	32.17061852	-103.09458309	111.60	119.18	0.02	0.34
2241	1169.8	32.17062146	-103.09458287	128.09	127.27	0.01	0.33
2242	1170.3	32.17062521	-103.09458247	134.41	131.09	0.02	0.33
2243	1170.8	32.17062837	-103.09458335	129.77	129.77	0.02	0.29
2244	1171.3	32.17063108	-103.09458520	114.81	112.07	0.02	0.28
2245	1171.8	32.17063413	-103.09458673	86.21	89.34	0.02	0.31
2246	1172.4	32.17063737	-103.09458809	67.77	84.61	0.01	0.32
2247	1172.9	32.17063792	-103.09458786	69.81	84.38	0.00	0.34
2248	1173.4	32.17063748	-103.09458705	82.15	79.41	-0.01	0.34
2249	1173.9	32.17063602	-103.09458370	89.96	91.09	-0.01	0.32
2250	1174.5	32.17063434	-103.09457981	98.87	103.01	0.01	0.35
2251	1175.0	32.17063171	-103.09457641	107.50	108.75	0.01	0.34
2252	1175.5	32.17062898	-103.09457305	126.88	113.01	0.02	0.36
2253	1176.0	32.17062545	-103.09457054	137.85	116.88	0.04	0.38
2254	1176.5	32.17062191	-103.09456806	132.23	119.81	0.05	0.37
2255	1177.1	32.17061887	-103.09456568	121.09	123.91	0.07	0.42
2256	1177.6	32.17061629	-103.09456323	109.57	130.27	0.07	0.44
2257	1178.1	32.17061613	-103.09456038	104.77	122.77	0.07	0.44
2258	1178.6	32.17061657	-103.09455746	112.50	116.37	0.07	0.43
2259	1179.2	32.17061884	-103.09455434	127.66	103.13	0.07	0.44
2260	1179.7	32.17062144	-103.09455169	116.84	98.05	0.07	0.41
2261	1180.2	32.17062470	-103.09454996	95.63	93.44	0.06	0.41
2262	1180.7	32.17062773	-103.09454798	78.20	104.57	0.05	0.41
2263	1181.2	32.17063043	-103.09454565	64.38	109.49	0.03	0.39
2264	1181.8	32.17063187	-103.09454339	60.00	103.71	0.03	0.40
2265	1182.3	32.17063205	-103.09454118	67.07	99.14	0.02	0.39
2266	1182.8	32.17063100	-103.09453868	85.16	102.93	0.01	0.41
2267	1183.3	32.17062911	-103.09453598	116.52	116.88	0.01	0.44
2268	1183.9	32.17062623	-103.09453443	146.21	135.39	0.03	0.46
2269	1184.4	32.17062291	-103.09453342	167.70	157.19	0.05	0.48
2270	1184.9	32.17061946	-103.09453306	200.51	192.38	0.06	0.56
2271	1185.4	32.17061598	-103.09453291	214.65	209.65	0.04	0.58
2272	1185.9	32.17061214	-103.09453380	203.91	201.76	0.04	0.60
2273	1186.5	32.17060824	-103.09453488	184.02	186.76	0.08	0.61

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2274	1187.0	32.17060525	-103.09453601	158.16	174.45	0.09	0.62
2275	1187.5	32.17060237	-103.09453707	137.23	163.59	0.07	0.63
2276	1188.0	32.17060109	-103.09453456	132.97	156.25	0.07	0.62
2277	1188.6	32.17060000	-103.09453204	139.61	158.24	0.08	0.65
2278	1189.1	32.17060065	-103.09452931	149.34	156.48	0.09	0.66
2279	1189.6	32.17060154	-103.09452653	171.25	164.38	0.08	0.66
2280	1190.1	32.17060341	-103.09452355	190.86	191.99	0.06	0.67
2281	1190.6	32.17060533	-103.09452072	186.21	207.46	0.06	0.62
2282	1191.2	32.17060743	-103.09451826	197.89	234.88	0.06	0.67
2283	1191.7	32.17060975	-103.09451596	189.88	231.52	0.06	0.66
2284	1192.2	32.17061251	-103.09451395	170.98	214.73	0.05	0.61
2285	1192.7	32.17061549	-103.09451223	175.08	213.71	0.05	0.61
2286	1193.3	32.17061876	-103.09451089	130.66	177.15	0.04	0.56
2287	1193.8	32.17062210	-103.09451040	84.49	126.76	0.04	0.50
2288	1194.3	32.17062552	-103.09451065	65.39	111.21	0.04	0.49
2289	1194.8	32.17062580	-103.09451128	66.72	106.06	0.04	0.48
2290	1195.4	32.17062406	-103.09451217	81.99	113.56	0.05	0.51
2291	1195.9	32.17062114	-103.09451304	116.21	135.66	0.07	0.57
2292	1196.4	32.17061769	-103.09451391	134.69	161.37	0.07	0.61
2293	1196.9	32.17061423	-103.09451202	138.83	169.88	0.07	0.57
2294	1197.4	32.17061076	-103.09450937	142.81	171.99	0.08	0.58
2295	1198.0	32.17060834	-103.09450570	137.19	166.68	0.09	0.65
2296	1198.5	32.17060607	-103.09450186	137.03	162.19	0.09	0.69
2297	1199.0	32.17060483	-103.09449874	143.56	159.02	0.06	0.79
2298	1199.5	32.17060360	-103.09449567	162.77	160.04	0.05	0.78
2299	1200.0	32.17060143	-103.09449314	171.99	177.46	0.05	0.80
2300	1200.6	32.17059918	-103.09449106	182.93	181.64	0.07	0.84
2301	1201.1	32.17059634	-103.09449223	213.09	181.06	0.12	0.91
2302	1201.6	32.17059340	-103.09449345	245.90	195.27	0.12	0.90
2303	1202.1	32.17059007	-103.09449481	290.82	217.97	0.13	0.97
2304	1202.7	32.17058660	-103.09449644	302.15	256.13	0.12	1.03
2305	1203.2	32.17058294	-103.09449860	285.86	266.95	0.12	1.00
2306	1203.7	32.17057937	-103.09450105	306.56	275.47	0.14	1.01
2307	1204.2	32.17057601	-103.09450389	300.16	292.42	0.14	1.03
2308	1204.7	32.17057255	-103.09450655	267.50	288.79	0.13	1.03
2309	1205.3	32.17056898	-103.09450900	273.48	285.27	0.15	1.04
2310	1205.8	32.17056548	-103.09451122	253.56	278.95	0.14	0.99
2311	1206.3	32.17056202	-103.09451327	233.83	270.04	0.14	0.93
2312	1206.8	32.17055834	-103.09451466	226.95	266.76	0.14	0.98
2313	1207.4	32.17055452	-103.09451568	209.06	241.68	0.13	0.94
2314	1207.9	32.17055060	-103.09451540	189.06	209.26	0.12	0.88
2315	1208.4	32.17054663	-103.09451461	144.61	171.13	0.11	0.87
2316	1208.9	32.17054584	-103.09451591	128.13	145.47	0.10	0.80
2317	1209.4	32.17054582	-103.09451772	150.86	137.50	0.10	0.74
2318	1210.0	32.17054686	-103.09452039	160.16	174.26	0.14	0.78
2319	1210.5	32.17054805	-103.09452319	155.20	189.88	0.15	0.74
2320	1211.0	32.17054946	-103.09452758	134.49	176.41	0.13	0.66
2321	1211.5	32.17055076	-103.09453201	124.88	164.38	0.10	0.61
2322	1212.1	32.17055025	-103.09453607	130.94	151.76	0.08	0.57
2323	1212.6	32.17054991	-103.09453938	121.88	134.92	0.07	0.53
2324	1213.1	32.17055064	-103.09453785	116.80	144.49	0.07	0.51
2325	1213.6	32.17055147	-103.09453561	148.83	178.13	0.08	0.59
2326	1214.1	32.17055267	-103.09453100	192.46	214.84	0.11	0.73
2327	1214.7	32.17055366	-103.09452640	215.78	232.81	0.12	0.81
2328	1215.2	32.17055421	-103.09452185	232.50	246.37	0.13	0.84
2329	1215.7	32.17055538	-103.09451754	245.39	268.44	0.14	0.89
2330	1216.2	32.17055750	-103.09451360	241.76	272.58	0.13	0.87
2331	1216.8	32.17056065	-103.09451079	254.41	267.97	0.17	0.93
2332	1217.3	32.17056493	-103.09450922	251.95	261.33	0.14	0.96
2333	1217.8	32.17056946	-103.09450768	243.32	253.75	0.13	0.97
2334	1218.3	32.17057419	-103.09450617	233.52	263.01	0.13	0.94
2335	1218.8	32.17057884	-103.09450483	215.00	261.45	0.16	1.04
2336	1219.4	32.17058344	-103.09450359	216.33	286.37	0.28	1.18
2337	1219.9	32.17058759	-103.09450152	213.24	266.48	0.16	1.29
2338	1220.4	32.17059158	-103.09449917	202.97	221.33	0.09	0.88

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2339	1220.9	32.17059561	-103.09449820	172.46	203.16	0.07	0.70
2340	1221.5	32.17059964	-103.09449752	137.03	174.73	0.05	0.68
2341	1222.0	32.17059823	-103.09449693	138.91	170.51	0.05	0.71
2342	1222.5	32.17059627	-103.09449635	197.19	203.24	0.06	0.80
2343	1223.0	32.17059180	-103.09449634	254.26	217.89	0.09	0.91
2344	1223.5	32.17058721	-103.09449635	283.28	250.59	0.10	0.99
2345	1224.1	32.17058263	-103.09449631	300.63	275.27	0.12	1.00
2346	1224.6	32.17057803	-103.09449629	329.53	278.13	0.14	1.05
2347	1225.1	32.17057393	-103.09449637	324.73	300.16	0.14	1.06
2348	1225.6	32.17056976	-103.09449670	332.07	326.76	0.15	1.08
2349	1226.2	32.17056564	-103.09449774	313.40	321.95	0.14	1.10
2350	1226.7	32.17056159	-103.09449825	279.02	292.23	0.14	1.10
2351	1227.2	32.17055766	-103.09449768	242.19	248.91	0.15	1.05
2352	1227.7	32.17055518	-103.09449595	214.84	222.73	0.15	1.02
2353	1228.2	32.17055471	-103.09449262	228.13	219.10	0.15	1.04
2354	1228.8	32.17055530	-103.09448880	263.95	217.70	0.14	1.07
2355	1229.3	32.17055693	-103.09448450	281.64	223.44	0.13	1.06
2356	1229.8	32.17055892	-103.09448065	326.88	262.42	0.13	1.08
2357	1230.3	32.17056115	-103.09447712	316.91	274.06	0.14	1.10
2358	1230.9	32.17056360	-103.09447341	244.38	227.03	0.15	0.92
2359	1231.4	32.17056613	-103.09446963	200.82	205.82	0.13	0.87
2360	1231.9	32.17056573	-103.09446722	180.47	209.34	0.11	1.02
2361	1232.4	32.17056441	-103.09446523	189.41	208.20	0.10	1.01
2362	1232.9	32.17056174	-103.09446312	225.23	210.12	0.10	1.01
2363	1233.5	32.17055883	-103.09446099	264.77	204.57	0.10	1.00
2364	1234.0	32.17055497	-103.09446002	286.09	224.57	0.12	1.05
2365	1234.5	32.17055105	-103.09445913	299.18	235.31	0.13	1.09
2366	1235.0	32.17054743	-103.09445770	280.20	218.48	0.15	1.16
2367	1235.6	32.17054414	-103.09445611	272.03	204.41	0.15	1.17
2368	1236.1	32.17054398	-103.09445298	286.25	178.28	0.15	1.17
2369	1236.6	32.17054422	-103.09444987	313.48	157.50	0.20	1.22
2370	1237.1	32.17054618	-103.09444695	309.02	195.51	0.17	1.13
2371	1237.6	32.17054822	-103.09444421	299.84	241.25	0.13	1.14
2372	1238.2	32.17055049	-103.09444197	270.70	240.16	0.10	1.09
2373	1238.7	32.17055248	-103.09444001	211.68	218.67	0.10	1.02
2374	1239.2	32.17055396	-103.09443858	211.99	213.28	0.10	1.08
2375	1239.7	32.17055372	-103.09443704	230.74	207.62	0.10	1.05
2376	1240.3	32.17055126	-103.09443537	265.04	229.10	0.10	1.04
2377	1240.8	32.17054821	-103.09443422	288.01	236.13	0.12	1.11
2378	1241.3	32.17054461	-103.09443355	288.36	227.85	0.13	1.13
2379	1241.8	32.17054304	-103.09443184	251.68	225.35	0.11	1.12
2380	1242.3	32.17054281	-103.09442945	260.82	227.54	0.12	1.12
2381	1242.9	32.17054418	-103.09442649	265.78	222.11	0.12	1.12
2382	1243.4	32.17054624	-103.09442329	225.51	207.27	0.10	1.02
2383	1243.9	32.17054920	-103.09442251	216.13	219.34	0.11	1.03
2384	1244.4	32.17055243	-103.09442240	188.75	216.33	0.09	1.06
2385	1245.0	32.17055124	-103.09442158	178.48	220.43	0.05	1.01
2386	1245.5	32.17054935	-103.09442064	195.51	236.68	0.05	0.99
2387	1246.0	32.17054820	-103.09441770	205.90	233.36	0.06	1.04
2388	1246.5	32.17054712	-103.09441466	201.91	217.89	0.08	1.03
2389	1247.0	32.17054704	-103.09441158	181.09	210.31	0.08	1.00
2390	1247.6	32.17054726	-103.09440857	173.67	204.69	0.09	0.94
2391	1248.1	32.17054970	-103.09440598	161.52	194.77	0.09	0.83
2392	1248.6	32.17055250	-103.09440420	156.25	190.98	0.08	0.82
2393	1249.1	32.17055669	-103.09440565	162.93	191.56	0.07	0.85
2394	1249.7	32.17055951	-103.09440647	151.84	183.28	0.06	0.89
2395	1250.2	32.17055907	-103.09440579	131.95	168.63	0.05	0.83
2396	1250.7	32.17055829	-103.09440396	147.07	182.03	0.05	0.82
2397	1251.2	32.17055695	-103.09440018	186.60	208.05	0.07	0.90
2398	1251.7	32.17055442	-103.09439699	214.61	218.83	0.10	0.95
2399	1252.3	32.17055049	-103.09439445	211.13	209.45	0.10	1.00
2400	1252.8	32.17054655	-103.09439284	193.98	192.11	0.13	1.09
2401	1253.3	32.17054258	-103.09439201	164.84	180.43	0.15	1.13
2402	1253.8	32.17054133	-103.09439103	153.32	186.80	0.15	1.14
2403	1254.4	32.17054165	-103.09438998	174.73	187.46	0.14	1.12

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2404	1254.9	32.17054343	-103.09438757	191.60	173.75	0.12	1.06
2405	1255.4	32.17054577	-103.09438465	201.52	179.38	0.10	1.01
2406	1255.9	32.17054810	-103.09438278	204.14	196.76	0.09	0.98
2407	1256.4	32.17055042	-103.09438118	192.93	198.16	0.08	0.93
2408	1257.0	32.17055220	-103.09437846	195.94	201.76	0.08	0.95
2409	1257.5	32.17055391	-103.09437561	193.28	192.38	0.10	0.98
2410	1258.0	32.17055601	-103.09437300	159.61	174.22	0.10	0.96
2411	1258.5	32.17055811	-103.09437057	127.97	170.70	0.08	0.88
2412	1259.1	32.17055954	-103.09437056	126.13	174.45	0.05	0.89
2413	1259.6	32.17056032	-103.09437034	153.44	152.58	0.04	0.85
2414	1260.1	32.17055715	-103.09436887	203.75	188.71	0.06	0.92
2415	1260.6	32.17055370	-103.09436794	229.18	206.56	0.10	1.03
2416	1261.1	32.17054929	-103.09436879	220.74	225.63	0.14	1.13
2417	1261.7	32.17054493	-103.09436969	216.09	243.20	0.17	1.14
2418	1262.2	32.17054064	-103.09437068	188.71	243.83	0.13	1.15
2419	1262.7	32.17053630	-103.09437114	164.53	233.67	0.13	1.20
2420	1263.2	32.17053184	-103.09437078	156.84	232.31	0.35	1.38
2421	1263.8	32.17052755	-103.09437052	144.69	189.18	0.16	1.66
2422	1264.3	32.17052344	-103.09437034	174.77	163.44	0.08	0.52
2423	1264.8	32.17051897	-103.09437050	198.56	171.60	0.10	0.79
2424	1265.3	32.17051421	-103.09437091	216.13	200.39	0.16	1.11
2425	1265.8	32.17050917	-103.09437134	184.26	210.27	0.13	1.03
2426	1266.4	32.17050395	-103.09437178	176.33	199.73	0.12	0.99
2427	1266.9	32.17049888	-103.09437266	168.59	161.56	0.11	0.93
2428	1267.4	32.17049385	-103.09437370	153.95	152.73	0.10	0.90
2429	1267.9	32.17048931	-103.09437630	142.89	157.19	0.11	0.93
2430	1268.5	32.17048487	-103.09437925	146.09	146.56	0.10	0.92
2431	1269.0	32.17048146	-103.09438343	167.58	140.12	0.10	0.90
2432	1269.5	32.17047816	-103.09438773	137.46	130.66	0.11	0.89
2433	1270.0	32.17047500	-103.09439171	129.26	153.59	0.19	0.97
2434	1270.5	32.17047181	-103.09439558	122.38	193.40	0.13	1.02
2435	1271.1	32.17046802	-103.09439820	107.27	187.97	0.11	0.92
2436	1271.6	32.17046426	-103.09440086	97.07	175.94	0.11	0.90
2437	1272.1	32.17046078	-103.09440363	88.75	156.13	0.08	0.84
2438	1272.6	32.17045731	-103.09440594	86.25	130.82	0.04	0.75
2439	1273.2	32.17045393	-103.09440684	107.73	120.82	0.05	0.75
2440	1273.7	32.17045084	-103.09440785	90.27	111.95	0.04	0.70
2441	1274.2	32.17044836	-103.09440908	81.88	109.14	0.04	0.67
2442	1274.7	32.17044763	-103.09440975	93.40	116.72	0.04	0.66
2443	1275.2	32.17044931	-103.09440962	106.21	126.02	0.05	0.64
2444	1275.8	32.17045174	-103.09440896	134.10	152.77	0.05	0.69
2445	1276.3	32.17045489	-103.09440778	132.77	167.54	0.06	0.72
2446	1276.8	32.17045778	-103.09440714	126.68	169.34	0.06	0.78
2447	1277.3	32.17046047	-103.09440688	141.41	176.48	0.09	0.85
2448	1277.9	32.17046361	-103.09440734	146.99	173.79	0.08	0.84
2449	1278.4	32.17046696	-103.09440816	162.38	172.62	0.08	0.80
2450	1278.9	32.17046942	-103.09441106	196.68	191.84	0.09	0.85
2451	1279.4	32.17047159	-103.09441464	209.22	207.34	0.11	0.90
2452	1279.9	32.17047220	-103.09441815	193.52	214.96	0.12	0.92
2453	1280.5	32.17047250	-103.09442166	222.62	222.50	0.12	0.96
2454	1281.0	32.17047227	-103.09442549	240.20	230.23	0.09	0.95
2455	1281.5	32.17047199	-103.09442933	225.51	235.16	0.08	0.93
2456	1282.0	32.17047191	-103.09443177	224.22	221.29	0.10	0.97
2457	1282.6	32.17047182	-103.09443432	222.70	205.31	0.14	1.01
2458	1283.1	32.17047178	-103.09443779	213.59	214.18	0.12	1.07
2459	1283.6	32.17047197	-103.09444064	185.31	200.82	0.09	1.06
2460	1284.1	32.17047313	-103.09444082	171.68	197.73	0.04	0.99
2461	1284.6	32.17047473	-103.09444103	212.62	231.60	0.04	1.12
2462	1285.2	32.17047752	-103.09444130	252.77	274.92	0.08	1.26
2463	1285.7	32.17048055	-103.09444119	266.99	292.31	0.10	1.23
2464	1286.2	32.17048403	-103.09444039	256.48	278.87	0.06	1.17
2465	1286.7	32.17048778	-103.09444073	276.64	263.20	0.11	1.21
2466	1287.3	32.17049191	-103.09444254	263.67	240.74	0.12	1.20
2467	1287.8	32.17049439	-103.09444534	236.13	229.06	0.10	1.24
2468	1288.3	32.17049539	-103.09444908	234.45	213.13	0.15	1.23

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2469	1288.8	32.17049417	-103.09445219	247.62	205.27	0.12	1.19
2470	1289.3	32.17049149	-103.09445488	266.91	234.69	0.08	1.21
2471	1289.9	32.17048879	-103.09445774	294.65	271.17	0.16	1.28
2472	1290.4	32.17048607	-103.09446067	284.96	262.31	0.10	1.16
2473	1290.9	32.17048336	-103.09446271	261.52	235.82	0.07	1.05
2474	1291.4	32.17048067	-103.09446450	246.17	227.07	0.07	1.07
2475	1292.0	32.17048259	-103.09446672	244.22	223.20	0.06	1.00
2476	1292.5	32.17048523	-103.09446901	286.68	249.30	0.08	1.03
2477	1293.0	32.17048935	-103.09447061	298.09	257.23	0.11	1.16
2478	1293.5	32.17049352	-103.09447224	255.82	238.75	0.12	1.13
2479	1294.0	32.17049638	-103.09447516	247.58	230.63	0.14	1.22
2480	1294.6	32.17049933	-103.09447784	235.51	231.37	0.20	1.25
2481	1295.1	32.17050299	-103.09447876	201.25	217.11	0.17	1.27
2482	1295.6	32.17050663	-103.09447958	189.84	180.90	0.53	1.02
2483	1296.1	32.17051024	-103.09448000	179.10	131.33	0.72	-0.03
2484	1296.7	32.17051341	-103.09448119	158.40	123.63	0.52	-0.08
2485	1297.2	32.17051536	-103.09448404	150.78	125.27	0.42	0.18
2486	1297.7	32.17051597	-103.09448656	152.19	127.11	0.44	0.78
2487	1298.2	32.17051433	-103.09448842	155.04	125.82	0.51	0.69
2488	1298.7	32.17051257	-103.09449008	172.62	124.14	0.49	0.75
2489	1299.3	32.17051067	-103.09449150	192.46	138.79	0.27	1.02
2490	1299.8	32.17050860	-103.09449305	174.53	148.20	0.17	0.96
2491	1300.3	32.17050637	-103.09449471	168.40	143.67	0.14	0.91
2492	1300.8	32.17050400	-103.09449639	162.89	148.71	0.12	0.91
2493	1301.4	32.17050156	-103.09449808	180.35	145.00	0.18	0.95
2494	1301.9	32.17049815	-103.09449906	173.83	135.23	0.22	1.04
2495	1302.4	32.17049435	-103.09449975	171.56	156.91	0.18	1.12
2496	1302.9	32.17049102	-103.09450023	190.12	252.38	0.12	1.07
2497	1303.4	32.17048782	-103.09450065	175.47	228.20	0.11	0.96
2498	1304.0	32.17048581	-103.09450262	154.14	166.99	0.13	0.87
2499	1304.5	32.17048394	-103.09450478	137.50	156.64	0.14	0.78
2500	1305.0	32.17048012	-103.09450392	148.28	165.78	0.13	0.81
2501	1305.5	32.17047631	-103.09450290	166.33	167.58	0.10	0.80
2502	1306.1	32.17047353	-103.09450076	165.66	158.59	0.11	0.80
2503	1306.6	32.17047066	-103.09449865	153.28	158.48	0.13	0.85
2504	1307.1	32.17046723	-103.09449664	131.06	160.43	0.11	0.83
2505	1307.6	32.17046389	-103.09449439	121.72	171.91	0.11	0.81
2506	1308.1	32.17046094	-103.09449138	113.75	183.87	0.11	0.82
2507	1308.7	32.17045820	-103.09448830	98.67	166.25	0.11	0.81
2508	1309.2	32.17045597	-103.09448510	92.81	136.76	0.08	0.78
2509	1309.7	32.17045493	-103.09448317	85.20	105.86	0.03	0.72
2510	1310.2	32.17045576	-103.09448320	88.63	102.46	0.02	0.70
2511	1310.8	32.17045662	-103.09448478	102.23	119.45	0.03	0.72
2512	1311.3	32.17045750	-103.09448803	117.66	133.83	0.06	0.77
2513	1311.8	32.17045882	-103.09449177	133.32	143.44	0.09	0.77
2514	1312.3	32.17046046	-103.09449584	150.51	161.37	0.09	0.76
2515	1312.8	32.17046178	-103.09449997	163.95	173.20	0.09	0.74
2516	1313.4	32.17046293	-103.09450413	143.09	167.46	0.06	0.65
2517	1313.9	32.17046262	-103.09450810	153.75	170.98	0.08	0.68
2518	1314.4	32.17046178	-103.09451203	154.49	168.40	0.07	0.67
2519	1314.9	32.17045907	-103.09451326	158.83	174.34	0.07	0.65
2520	1315.5	32.17045596	-103.09451390	182.15	186.80	0.07	0.67
2521	1316.0	32.17045368	-103.09451506	158.16	172.27	0.07	0.65
2522	1316.5	32.17045149	-103.09451627	134.49	149.30	0.06	0.61
2523	1317.0	32.17045116	-103.09451889	132.23	139.84	0.06	0.60
2524	1317.5	32.17045093	-103.09452149	120.20	127.31	0.05	0.56
2525	1318.1	32.17045083	-103.09452313	101.64	116.64	0.04	0.52
2526	1318.6	32.17045076	-103.09452469	95.51	114.45	0.04	0.54
2527	1319.1	32.17045090	-103.09452580	90.12	108.91	0.03	0.49
2528	1319.6	32.17045010	-103.09452684	105.51	108.40	0.03	0.50
2529	1320.2	32.17044644	-103.09452773	109.26	103.56	0.05	0.50
2530	1320.7	32.17044282	-103.09452791	112.15	106.91	0.05	0.48
2531	1321.2	32.17043928	-103.09452664	113.36	114.14	0.06	0.49
2532	1321.7	32.17043598	-103.09452469	105.90	128.01	0.05	0.51
2533	1322.2	32.17043299	-103.09452180	103.59	139.06	0.04	0.53

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2534	1322.8	32.17043078	-103.09452110	119.49	125.63	0.03	0.52
2535	1323.3	32.17042933	-103.09452259	124.41	124.77	0.02	0.49
2536	1323.8	32.17042734	-103.09452310	130.90	133.71	0.02	0.45
2537	1324.3	32.17042497	-103.09452292	131.25	130.08	0.02	0.46
2538	1324.9	32.17042310	-103.09452442	128.48	127.58	0.02	0.42
2539	1325.4	32.17042146	-103.09452674	119.34	121.76	0.02	0.41
2540	1325.9	32.17042221	-103.09452866	113.63	112.46	0.03	0.42
2541	1326.4	32.17042372	-103.09453046	98.28	101.17	0.02	0.41
2542	1326.9	32.17042506	-103.09453243	79.53	94.30	0.01	0.42
2543	1327.5	32.17042638	-103.09453445	79.38	98.44	-0.02	0.46
2544	1328.0	32.17043000	-103.09453239	101.37	103.95	-0.02	0.40
2545	1328.5	32.17043382	-103.09453000	129.38	108.24	0.04	0.45
2546	1329.0	32.17043769	-103.09452688	134.02	111.95	0.06	0.47
2547	1329.6	32.17044157	-103.09452376	119.81	115.63	0.05	0.48
2548	1330.1	32.17044553	-103.09452057	113.59	118.32	0.07	0.54
2549	1330.6	32.17044944	-103.09451732	124.61	128.20	0.08	0.60
2550	1331.1	32.17045298	-103.09451398	149.26	153.32	0.07	0.62
2551	1331.6	32.17045643	-103.09451018	155.12	163.63	0.08	0.65
2552	1332.2	32.17045958	-103.09450508	154.14	177.73	0.07	0.70
2553	1332.7	32.17046267	-103.09450007	159.22	209.14	0.08	0.77
2554	1333.2	32.17046565	-103.09449524	155.78	200.12	0.09	0.80
2555	1333.7	32.17046868	-103.09449090	154.10	178.09	0.10	0.85
2556	1334.3	32.17047182	-103.09448720	170.23	172.07	0.08	0.90
2557	1334.8	32.17047436	-103.09448315	177.70	178.79	0.06	0.90
2558	1335.3	32.17047638	-103.09447878	211.25	192.66	0.07	0.96
2559	1335.8	32.17047746	-103.09447343	245.59	205.12	0.06	1.00
2560	1336.3	32.17047795	-103.09446741	279.18	240.82	0.06	1.11
2561	1336.9	32.17047857	-103.09446174	294.38	255.20	0.07	1.22
2562	1337.4	32.17047927	-103.09445623	284.65	245.66	0.08	1.17
2563	1337.9	32.17048091	-103.09445100	303.87	286.88	0.16	1.31
2564	1338.4	32.17048283	-103.09444586	300.90	326.80	0.16	1.36
2565	1339.0	32.17048494	-103.09444106	268.24	260.31	0.10	1.25
2566	1339.5	32.17048708	-103.09443631	250.16	210.98	0.16	1.38
2567	1340.0	32.17048882	-103.09443119	284.61	215.86	0.88	2.19
2568	1340.5	32.17049052	-103.09442604	101.29	111.76	1.70	-2.72
2569	1341.0	32.17049155	-103.09442130	173.20	86.33	1.27	-1.34
2570	1341.6	32.17049239	-103.09441653	145.70	153.28	0.33	1.13
2571	1342.1	32.17049181	-103.09441147	163.67	171.76	0.15	1.22
2572	1342.6	32.17049078	-103.09440675	172.42	175.39	0.13	1.18
2573	1343.1	32.17048796	-103.09440333	172.54	169.14	0.11	1.09
2574	1343.7	32.17048495	-103.09439985	208.13	177.85	0.11	1.06
2575	1344.2	32.17048165	-103.09439646	241.45	193.83	0.11	1.04
2576	1344.7	32.17047918	-103.09439258	241.68	191.76	0.12	0.97
2577	1345.2	32.17047825	-103.09438796	239.02	186.99	0.13	0.96
2578	1345.7	32.17047828	-103.09438387	206.68	172.03	0.11	0.94
2579	1346.3	32.17047945	-103.09438043	190.35	153.05	0.11	0.95
2580	1346.8	32.17048164	-103.09437804	199.02	131.52	0.12	0.94
2581	1347.3	32.17048468	-103.09437655	210.59	133.36	0.11	0.92
2582	1347.8	32.17048749	-103.09437770	193.75	139.61	0.10	0.95
2583	1348.4	32.17049014	-103.09438042	181.56	150.66	0.10	0.97
2584	1348.9	32.17049220	-103.09437979	148.91	165.98	0.08	0.97
2585	1349.4	32.17049402	-103.09437779	143.36	165.20	0.08	0.97
2586	1349.9	32.17049538	-103.09437368	158.95	158.28	0.07	0.96
2587	1350.4	32.17049662	-103.09436903	163.67	160.04	0.08	0.96
2588	1351.0	32.17049744	-103.09436426	180.94	178.67	0.09	0.98
2589	1351.5	32.17049820	-103.09435949	184.30	177.81	0.11	0.99
2590	1352.0	32.17049812	-103.09435500	173.09	170.51	0.08	0.98
2591	1352.5	32.17049802	-103.09435050	184.77	174.49	0.09	1.01
2592	1353.1	32.17049816	-103.09434586	188.95	177.58	0.12	1.03
2593	1353.6	32.17049868	-103.09434194	199.06	174.73	0.13	1.00
2594	1354.1	32.17050165	-103.09434250	223.83	175.55	0.14	1.01
2595	1354.6	32.17050453	-103.09434354	244.96	193.09	0.14	1.01
2596	1355.1	32.17050704	-103.09434629	260.98	221.91	0.16	1.10
2597	1355.7	32.17050984	-103.09434903	262.54	251.95	0.16	1.13
2598	1356.2	32.17051328	-103.09435179	256.17	271.56	0.15	1.16

Ground Conductivity Measurements
RAM Energy Resources, WDQSU Well #99, Lea County, New Mexico

2599	1356.7	32.17051646	-103.09435512	248.48	299.88	0.16	1.20
2600	1357.2	32.17051922	-103.09435933	240.47	283.67	0.13	1.21
2601	1357.8	32.17052147	-103.09436350	208.05	218.05	0.14	1.14
2602	1358.3	32.17052318	-103.09436763	144.77	176.88	0.15	1.14
2603	1358.8	32.17052546	-103.09436979	119.45	190.78	0.12	1.16
2604	1359.3	32.17052818	-103.09437044	113.20	191.72	0.11	1.19
2605	1359.8	32.17053053	-103.09436915	134.61	197.89	0.17	1.33
2606	1360.4	32.17053270	-103.09436679	169.45	225.04	0.12	1.23
2607	1360.9	32.17053355	-103.09436318	186.02	227.23	0.12	1.19
2608	1361.4	32.17053392	-103.09435911	235.55	218.95	0.16	1.26
2609	1361.9	32.17053283	-103.09435445	256.45	234.88	0.13	1.26
2610	1362.5	32.17053141	-103.09434966	273.75	250.86	0.19	1.29
2611	1363.0	32.17052976	-103.09434564	263.56	265.47	0.20	1.36
2612	1363.5	32.17052810	-103.09434171	226.72	260.70	0.16	1.38
2613	1364.0	32.17052954	-103.09433981	207.11	239.26	0.16	1.26
2614	1364.5	32.17053131	-103.09433819	210.82	237.85	0.16	1.22
2615	1365.1	32.17053497	-103.09433842	205.27	241.06	0.15	1.16
2616	1365.6	32.17053866	-103.09433896	204.02	249.53	0.15	1.20
2617	1366.1	32.17054252	-103.09434127	224.34	228.59	0.13	1.17
2618	1366.6	32.17054623	-103.09434364	237.03	238.56	0.12	1.15
2619	1367.2	32.17054955	-103.09434619	254.18	267.42	0.15	1.16
2620	1367.7	32.17055311	-103.09434849	238.24	251.91	0.14	1.12
2621	1368.2	32.17055723	-103.09435029	224.14	232.34	0.12	1.04
2622	1368.7	32.17056117	-103.09435163	213.32	231.52	0.11	0.99
2623	1369.2	32.17056490	-103.09435231	154.96	185.27	0.09	0.90
2624	1369.8	32.17056779	-103.09435294	112.93	149.06	0.08	0.83
2625	1370.3	32.17056985	-103.09435352	100.59	131.56	0.07	0.80
2626	1370.8	32.17056961	-103.09435181	109.26	124.34	0.08	0.83
2627	1371.3	32.17056773	-103.09434847	139.73	174.81	0.11	0.92
2628	1371.9	32.17056427	-103.09434535	183.05	186.48	0.12	0.99
2629	1372.4	32.17056001	-103.09434231	208.16	217.31	0.12	1.04
2630	1372.9	32.17055662	-103.09433901	223.98	243.28	0.15	1.10
2631	1373.4	32.17055350	-103.09433561	225.39	263.28	0.15	1.15
2632	1373.9	32.17055179	-103.09433178	229.92	274.57	0.14	1.18
2633	1374.5	32.17055035	-103.09432787	236.48	273.56	0.15	1.20
2634	1375.0	32.17054938	-103.09432317	229.84	263.44	0.15	1.19
2635	1375.5	32.17054845	-103.09431843	226.68	252.19	0.16	1.22
2636	1376.0	32.17054799	-103.09431443	214.77	245.31	0.15	1.19
2637	1376.6	32.17054771	-103.09431038	214.77	245.12	0.16	1.18
2638	1377.1	32.17054929	-103.09430598	225.86	254.88	0.18	1.21
2639	1377.6	32.17055085	-103.09430146	228.13	256.80	0.17	1.21
2640	1378.1	32.17055230	-103.09429655	214.45	256.56	0.14	1.14
2641	1378.6	32.17055335	-103.09429142	226.52	271.25	0.15	1.15
2642	1379.2	32.17055327	-103.09428574	243.83	262.85	0.15	1.19
2643	1379.7	32.17055346	-103.09428050	250.86	266.29	0.14	1.14
2644	1380.2	32.17055417	-103.09427615	242.77	267.23	0.14	1.12
2645	1380.7	32.17055549	-103.09427204	239.06	258.59	0.13	1.13
2646	1381.3	32.17055759	-103.09426826	252.50	257.03	0.14	1.11
2647	1381.8	32.17055964	-103.09426424	259.06	253.56	0.09	1.13
2648	1382.3	32.17056166	-103.09426000	241.91	242.93	0.10	1.10
2649	1382.8	32.17056384	-103.09425591	244.49	246.52	0.11	0.96
2650	1383.3	32.17056614	-103.09425195	238.44	241.99	0.11	0.93
2651	1383.9	32.17056902	-103.09425010	218.40	211.91	0.11	0.87
2652	1384.4	32.17057215	-103.09424921	242.31	183.91	0.12	0.83
2653	1384.9	32.17057458	-103.09425051	251.37	197.42	0.11	0.83
2654	1385.4	32.17057679	-103.09425247	253.98	217.70	0.10	0.82
2655	1386.0	32.17057786	-103.09425665	264.18	231.17	0.10	0.84
2656	1386.5	32.17057874	-103.09426120	273.87	252.11	0.11	0.91
2657	1387.0	32.17057881	-103.09426516	263.20	280.08	0.11	0.96
2658	1387.5	32.17057887	-103.09426906	268.01	292.46	0.11	1.00
2659	1388.0	32.17057993	-103.09427213	244.22	283.01	0.10	0.96
2660	1388.6	32.17058097	-103.09427496	230.82	267.38	0.10	0.96
2661	1389.1	32.17058181	-103.09427583	212.42	249.65	0.12	1.03
2662	1389.6	32.17058310	-103.09427616	172.27	209.77	0.08	0.92
2663	1390.1	32.17058612	-103.09427438	141.56	178.56	0.05	0.85

Ground Conductivity Measurements
RAM Energy Resources, WDQSU Well #99, Lea County, New Mexico

2664	1390.7	32.17058907	-103.09427178	117.07	154.30	0.05	0.76
2665	1391.2	32.17059164	-103.09426751	104.49	157.46	0.06	0.71
2666	1391.7	32.17059395	-103.09426294	93.44	160.78	0.08	0.67
2667	1392.2	32.17059576	-103.09425796	80.70	140.51	0.07	0.62
2668	1392.7	32.17059726	-103.09425289	71.88	121.29	0.05	0.55
2669	1393.3	32.17059840	-103.09424773	68.16	112.58	0.06	0.52
2670	1393.8	32.17059905	-103.09424259	62.77	105.47	0.06	0.51
2671	1394.3	32.17059928	-103.09423748	59.57	101.45	0.07	0.52
2672	1394.8	32.17059873	-103.09423262	57.85	98.59	0.06	0.50
2673	1395.4	32.17059772	-103.09422793	57.11	95.70	0.06	0.48
2674	1395.9	32.17059741	-103.09422373	57.58	95.66	0.08	0.49
2675	1396.4	32.17059738	-103.09421971	55.63	92.07	0.08	0.49
2676	1396.9	32.17059809	-103.09421611	54.69	87.66	0.07	0.47
2677	1397.4	32.17059898	-103.09421261	54.22	86.84	0.08	0.47
2678	1398.0	32.17060039	-103.09420891	54.06	87.85	0.07	0.46
2679	1398.5	32.17060186	-103.09420519	53.52	87.42	0.07	0.47
2680	1399.0	32.17060445	-103.09420316	54.10	88.16	0.07	0.45
2681	1399.5	32.17060709	-103.09420117	54.88	88.36	0.07	0.44
2682	1400.1	32.17061022	-103.09419895	54.69	87.50	0.06	0.44
2683	1400.6	32.17061335	-103.09419669	56.17	87.54	0.06	0.44
2684	1401.1	32.17061652	-103.09419410	57.70	88.16	0.06	0.40
2685	1401.6	32.17061979	-103.09419204	57.77	86.48	0.05	0.39
2686	1402.1	32.17062344	-103.09419181	57.27	84.30	0.06	0.37
2687	1402.7	32.17062713	-103.09419178	56.29	81.99	0.06	0.36
2688	1403.2	32.17063092	-103.09419220	52.07	78.16	0.05	0.36
2689	1403.7	32.17063475	-103.09419266	50.70	77.58	0.06	0.36
2690	1404.2	32.17063864	-103.09419319	47.31	75.70	0.07	0.35
2691	1404.8	32.17064202	-103.09419430	43.52	71.60	0.06	0.33
2692	1405.3	32.17064486	-103.09419605	41.13	68.13	0.08	0.36
2693	1405.8	32.17064818	-103.09419789	39.18	62.70	0.10	0.37
2694	1406.3	32.17065188	-103.09419983	35.94	58.87	0.07	0.36
2695	1406.8	32.17065593	-103.09420153	33.91	57.19	0.06	0.33
2696	1407.4	32.17066015	-103.09420311	31.60	53.24	0.06	0.29
2697	1407.9	32.17066155	-103.09420663	31.95	52.62	0.06	0.29
2698	1408.4	32.17066191	-103.09421084	32.31	52.81	0.05	0.29
2699	1408.9	32.17066048	-103.09421461	33.13	53.52	0.04	0.29
2700	1409.5	32.17065865	-103.09421828	35.90	58.28	0.04	0.30
2701	1410.0	32.17065653	-103.09422274	38.48	60.23	0.02	0.29
2702	1410.5	32.17065438	-103.09422729	38.87	60.78	0.02	0.29
2703	1411.0	32.17065218	-103.09423182	39.73	62.85	0.03	0.31
2704	1411.5	32.17065005	-103.09423638	39.49	64.26	0.03	0.33
2705	1412.1	32.17064886	-103.09424153	39.06	63.87	0.03	0.31
2706	1412.6	32.17064769	-103.09424679	40.00	65.39	0.03	0.34
2707	1413.1	32.17064665	-103.09425261	40.20	65.98	0.03	0.34
2708	1413.6	32.17064554	-103.09425825	41.33	66.99	0.07	0.39
2709	1414.2	32.17064425	-103.09426329	42.77	67.70	0.12	0.44
2710	1414.7	32.17064226	-103.09426807	45.00	69.45	0.04	0.46
2711	1415.2	32.17063881	-103.09427229	48.40	73.20	0.05	0.41
2712	1415.7	32.17063511	-103.09427599	50.55	75.98	0.05	0.40
2713	1416.2	32.17063106	-103.09427894	55.00	80.00	0.06	0.42
2714	1416.8	32.17062674	-103.09428208	57.89	82.77	0.06	0.43
2715	1417.3	32.17062213	-103.09428541	57.27	85.90	0.07	0.45
2716	1417.8	32.17061748	-103.09428901	56.88	87.27	0.08	0.48
2717	1418.3	32.17061285	-103.09429277	57.46	92.07	0.06	0.50
2718	1418.9	32.17060840	-103.09429622	63.56	103.40	0.07	0.56
2719	1419.4	32.17060405	-103.09429950	75.35	118.28	0.07	0.59
2720	1419.9	32.17059938	-103.09430163	92.62	122.70	0.08	0.63
2721	1420.4	32.17059462	-103.09430338	162.73	113.95	0.07	0.71
2722	1420.9	32.17058939	-103.09430439	189.49	170.78	0.08	0.76
2723	1421.5	32.17058408	-103.09430526	225.55	227.03	0.10	0.87
2724	1422.0	32.17057842	-103.09430548	227.62	251.02	0.11	0.95
2725	1422.5	32.17057275	-103.09430566	217.38	276.80	0.13	1.08
2726	1423.0	32.17056725	-103.09430636	204.84	284.69	0.12	1.11
2727	1423.6	32.17056181	-103.09430698	195.23	274.88	0.12	1.11
2728	1424.1	32.17055678	-103.09430695	193.67	254.92	0.11	1.06

Ground Conductivity Measurements
RAM Energy Resources, WDQSU Well #99, Lea County, New Mexico

2729	1424.6	32.17055170	-103.09430676	154.88	212.66	0.09	0.93
2730	1425.1	32.17054663	-103.09430583	113.24	170.94	0.12	0.90
2731	1425.6	32.17054145	-103.09430527	92.81	155.74	0.11	0.87
2732	1426.2	32.17053606	-103.09430576	82.97	152.27	0.10	0.90
2733	1426.7	32.17053057	-103.09430654	74.96	140.74	0.12	0.94
2734	1427.2	32.17052494	-103.09430786	68.40	126.95	0.12	0.94
2735	1427.7	32.17051921	-103.09430924	66.76	120.04	0.12	0.93
2736	1428.3	32.17051334	-103.09431071	64.65	113.63	0.10	0.86
2737	1428.8	32.17050760	-103.09431202	64.61	111.56	0.11	0.85
2738	1429.3	32.17050200	-103.09431318	63.87	107.15	0.10	0.81
2739	1429.8	32.17049617	-103.09431361	63.91	102.89	0.11	0.79
2740	1430.3	32.17049019	-103.09431355	62.15	96.68	0.10	0.77
2741	1430.9	32.17048476	-103.09431348	56.95	90.12	0.13	0.76
2742	1431.4	32.17047953	-103.09431341	51.41	85.31	0.11	0.73
2743	1431.9	32.17047425	-103.09431305	48.87	82.93	0.08	0.69
2744	1432.4	32.17046893	-103.09431261	48.87	82.23	0.08	0.68
2745	1433.0	32.17046363	-103.09431208	47.97	79.22	0.08	0.66
2746	1433.5	32.17045834	-103.09431154	47.97	76.25	0.07	0.65
2747	1434.0	32.17045329	-103.09431115	48.87	76.95	0.06	0.62
2748	1434.5	32.17044827	-103.09431074	47.70	75.70	0.04	0.58
2749	1435.0	32.17044375	-103.09430975	50.23	77.66	0.04	0.57
2750	1435.6	32.17043929	-103.09430868	52.38	78.56	0.04	0.56
2751	1436.1	32.17043539	-103.09430710	50.74	76.95	0.03	0.54
2752	1436.6	32.17043207	-103.09430602	54.69	80.90	0.05	0.58
2753	1437.1	32.17043097	-103.09430686	57.03	81.72	0.04	0.54
2754	1437.7	32.17043009	-103.09430747	58.09	82.07	0.04	0.54
2755	1438.2	32.17042981	-103.09430749	61.06	86.25	0.05	0.58
2756	1438.7	32.17042948	-103.09430737	63.01	86.76	0.06	0.58
2757	1439.2	32.17042907	-103.09430701	63.28	86.76	0.06	0.59
2758	1439.7	32.17042876	-103.09430660	63.40	86.91	0.06	0.57
2759	1440.3	32.17042855	-103.09430614	63.16	86.84	0.06	0.56
2760	1440.8	32.17042853	-103.09430607	63.09	87.03	0.08	0.56
2761	1441.3	32.17042866	-103.09430635	62.97	86.91	0.08	0.57
2762	1441.8	32.17042951	-103.09430707	61.95	86.60	0.11	0.56
2763	1442.4	32.17043080	-103.09430805	62.34	86.48	0.10	0.56
2764	1442.9	32.17043129	-103.09430852	62.58	86.41	0.09	0.56
2765	1443.4	32.17043146	-103.09430879	62.81	86.37	0.09	0.56
2766	1443.9	32.17043150	-103.09430895	62.89	85.90	0.08	0.57
2767	1444.4	32.17043150	-103.09430908	62.89	86.72	0.08	0.57

June 22, 2018

Ms. Olivia Yu
Environmental Specialist
New Mexico Oil Conservation Division
Hobbs District 1 Office
1625 French Drive
Hobbs, New Mexico 88240

SUBMITTED VIA EMAIL
Olivia.Yu@state.nm.us

Re: Release Characterization Work Plan Update
West Dollarhide Queen Sand Unit #99 Flowline Release
NMOCD Case No. 1RP-4961
Lea County, New Mexico

Dear Ms. Yu:

Enviro Clean Cardinal, LLC (ECC) has been retained by RAM Energy Resources (RAM) to prepare a Release Characterization Work Plan Update for RAM's West Dollarhide Queen Sand Unit (WDQSU) #99 flowline (Site) located in Unit Letter I, Section 31, Township 24 South, Range 38 East of Lea County, New Mexico (geographical coordinates 32.1703148N, 103.0941925W). The objective of this work plan update is to detail findings to date, and to propose additional soil borings in order to complete delineation of the impacts at the Site. The Site is approximately one and seven tenths (1.7) mile west of the New Mexico/Texas state line and seven (7) miles northeast of Jal, New Mexico. The Site location and topographical features are shown on the attached **Figure 1**. The original Release Characterization Work Plan dated March 12, 2018 was submitted to the NMOCD and approved via email on April 10, 2018. This update covers the soil hand auger installation and sampling as proposed in the original work plan.

Soil Boring Installation and Sample Collection

On April 19, 2018, ECC personnel were onsite to install six (6) hand auger borings (AH-1 through AH-6) within the release area. See **Figure 2** for hand auger soil boring locations. The soil borings were installed utilizing a stainless steel hand auger and samples were collected from the surface (0-6") to a maximum depth of five (5) feet below ground surface (bgs). Due to hard limestone, refusal was encountered from one (1) foot to five (5) feet bgs., thus impeding vertical delineation of the site. Soil samples were collected from each auger and placed in four (4) ounce glass containers provided by the laboratory. The auger was then decontaminated between each sample with Alconox© and deionized water. Samples collected were submitted to Xenco Laboratories (Xenco) of Midland, Texas under chain-of-custody for analysis of benzene, toluene, xylene, and ethylbenzene (BTEX) by EPA method 8021B, total petroleum hydrocarbons (TPH) by EPA method 8015B modified, and chlorides by EPA method 4500-CL-B. Analytical results for BTEX were below NMOCD standards, while TPH exceeded NMOCD standards for samples AH-1 (0-6") AH-2 (0-6"), AH-4 (0-6" and 5') and AH-5 (0-6") with results of 12,200 milligram per kilograms (mg/Kg), 7,250 mg/Kg, 15,300 mg/Kg, 10,383.1 mg/Kg and 12,700 mg/Kg, respectively. Chlorides ranged from <5.00 mg/Kg in AH-6 (0-6", 6"-1' and 2') to 8,380 mg/Kg in AH-3 (6"-1'). TPH was not delineated in auger hole AH-4, while chlorides were not delineated in auger holes AH-1, AH-2, AH-3, AH-4, and AH-5. See **Table 1** for analytical results. See **Attachment A** for Laboratory Analytical. Upon completion of the augers, each were grouted to the surface with

bentonite chips and hydrated to prevent further vertical penetration into the underlying sub strait by the release source.

Proposed Soil Boring Installation and Sample Collection

In order to complete vertical delineation of the hydrocarbons and chlorides at the site, RAM proposes to install three soil borings in the vicinity of auger holes AH-1, AH-4, and AH-5. An air rotary rig will be utilized to install the three soil borings. Soil samples from the drill rig will be collected with two (2) foot split spoon samplers from three (3') foot bgs for AH-5 and at five (5') foot bgs for AH-1 and AH-4. Samples will be collected every two (2') feet to a depth of ten (10') feet bgs, and thereafter every five (5') feet until field chloride samples are below 600 mg/Kg for two consecutive readings and TPH is below 1,000 mg/Kg. ECC anticipates the maximum depth will be thirty (30') feet bgs. Soil samples will be collected from the split spoon, bagged, field screened, and placed in four (4) ounce glass jars provided by the laboratory. The split spoon will be decontaminated between each sample with Alconox© and deionized water. The soil borings will be field screened with a photoionization detector (PID) for TPH and a field conductivity meter for chlorides. See **Figure 3** for proposed soil boring locations. Upon completion of the sampling, select soil samples will be collected and submitted to Xenco under chain-of-custody for analysis of TPH by EPA method 8015b modified and chlorides by EPA method E300.0. Upon completion of the soil sampling, each of the soil borings will be grouted from the maximum extent of the boring to the surface with bentonite chips and hydrated.

Upon receipt of the laboratory analytical results, ECC will prepare a remedial action work plan that will be submitted to the NMOCD for approval.

ECC hopes the NMOCD will find this Release Characterization Work Plan Update responsive to their C-141 response, and will approve its implementation. If you have questions regarding this document, please do not hesitate to contact Mr. Darrell Pennington at RAM at 918-947-6304, or myself at 432-301-0209.

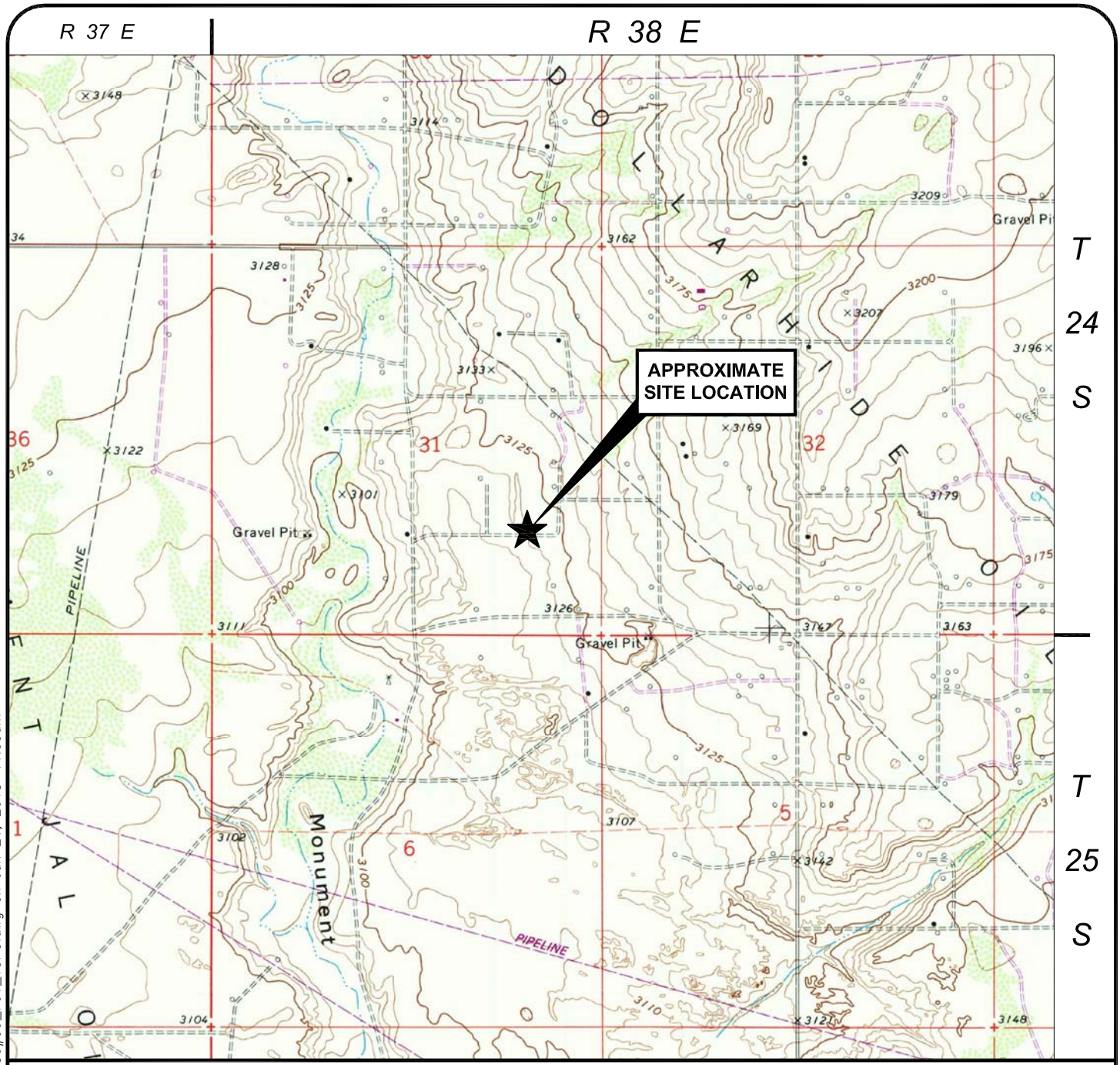
Sincerely,
Enviro Clean Cardinal, LLC

Jeffrey Kindley, P.G.
Senior Hydro Geologist

Attachments: Figure 1 – Site Location and Topographic Features
Figure 2 – Hand Auger Soil Boring Locations
Figure 3 – Proposed Soil Boring Locations
Table 1 – Laboratory Analytical
Attachment A – Laboratory Analytical

ATTACHMENTS

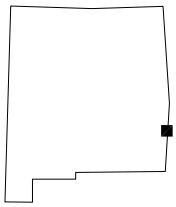
FIGURES



SOURCE: U.S.G.S. 7.5 MINUTE TOPOGRAPHIC QUADRANGLE
JAL NE, TEXAS-NEW MEXICO 1969, PHOTOREVISED 1979

SCALE
0 1/2 1 MILE

NEW MEXICO



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CLIENT RAM ENERGY RESOURCES TULSA, OKLAHOMA	FIGURE TITLE ***SITE LOCATION AND TOPOGRAPHIC FEATURES***
LOCATION WEST DOLLARHIDE QUEEN SAND UNIT #99 FLOWLINE RELEASE SEC. 31, T24S R38E, LEA COUNTY, NEW MEXICO	DOCUMENT TITLE RELEASE CHARACTERIZATION REPORT

ENVIRO CLEAN CARDINAL

Enviro Clean Cardinal, LLC
2405 East County Road 123
Midland, Texas 79706
432.301.0209
www.ECGRP.com

		DESIGNED BY	GHR\JK
DATE	6/21/2018	APPROVED BY	GHR\JK
SCALE	AS SHOWN	DRAWN BY	SKG
PROJECT NUMBER		FIGURE NUMBER	
RAMHWDQ991		1	

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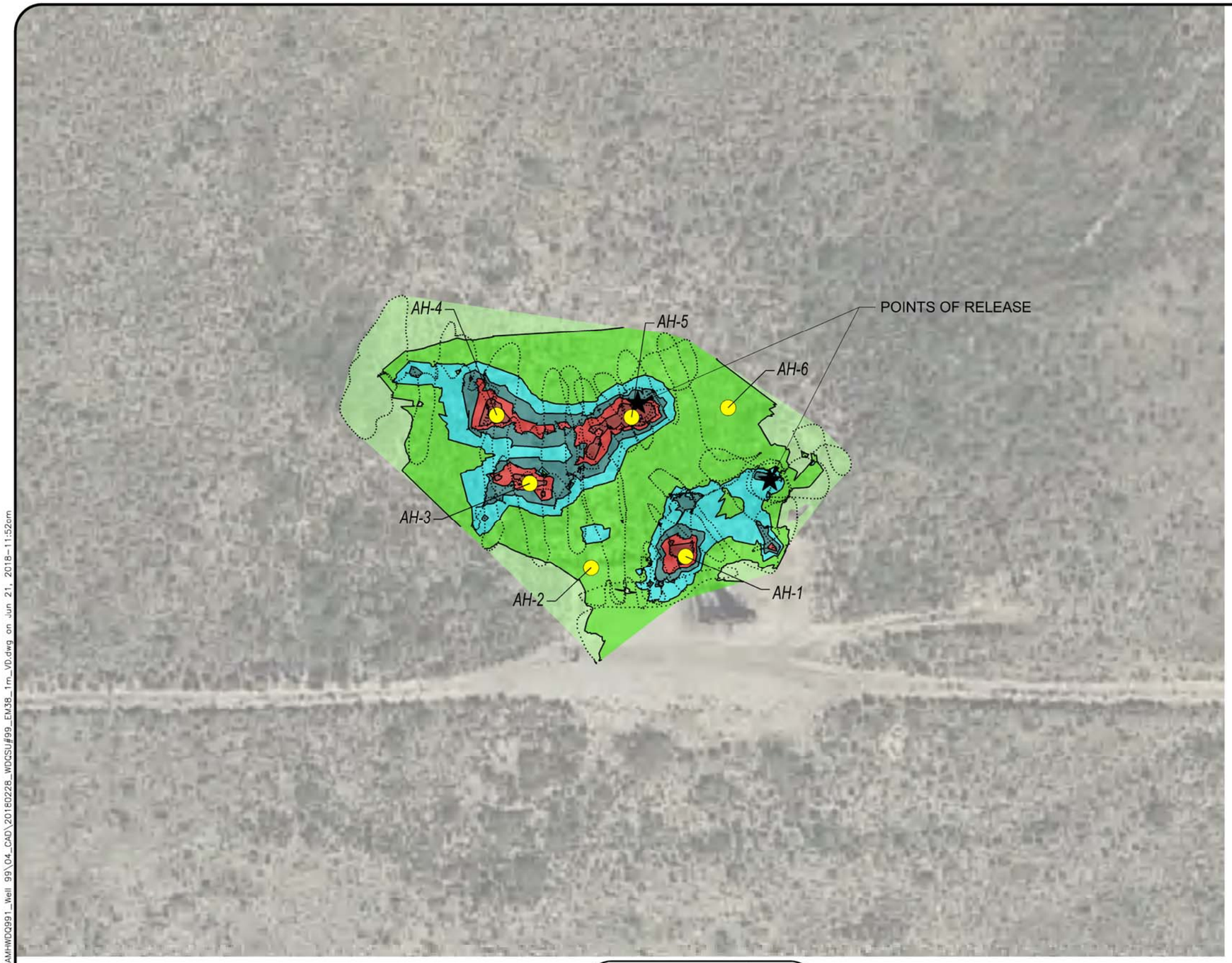

LEGEND

★ LOCATION OF RELEASE POINTS

× LOCATION OF EM38-MK2 GROUND CONDUCTIVITY MEASUREMENT IN mmhos/m

AH-1 LOCATION OF SOIL SAMPLES

APPARENT GROUND CONDUCTIVITIES

Minimum mmhos/m	Maximum mmhos/m	Color
0	50	
50	100	
100	150	
150	200	
200	250	
250	300	
300	350+	

N

25 0 25 50
SCALE FEET

NOTES:

1) EM SURVEY PERFORMED BY ENVIRO CLEAN CARDINAL, LLC ON FEBRUARY 28, 2018.
2) EM SURVEY CONDUCTED BY GEORGE H. (BUDDY) RICHARDSON, P.G. USING GEONICS EM38-MK2 GROUND CONDUCTIVITY METER.
3) AERIAL PHOTOGRAPH DATED NOVEMBER 22, 2016, GEOREFERENCED FROM GOOGLE EARTH IMAGE SERVICES.

ENVIRO CLEAN CARDINAL
Enviro Clean Cardinal, LLC
2405 East County Road 123
Midland, Texas 79706
432.301.0209
www.EnviroCleanPS.com

DOCUMENT TITLE: RELEASE CHARACTERIZATION REPORT

FIGURE TITLE: ***HAND AUGER SOIL BORING LOCATIONS***

CLIENT: RAM ENERGY RESOURCES TULSA, OKLAHOMA

LOCATION: WEST DOLLARHIDE QUEEN SAND UNIT #99 FLOWLINE RELEASE SECTION 31, T24S, R38E, LEA COUNTY, NEW MEXICO

DESIGNED BY	GHR\JK		
APPROVED BY	GHR\JK	SCALE	1"= 50'
DRAWN BY	SKG	DATE	6/21/2018

PROJECT NUMBER	FIGURE NUMBER
RAMHWDQ991	2

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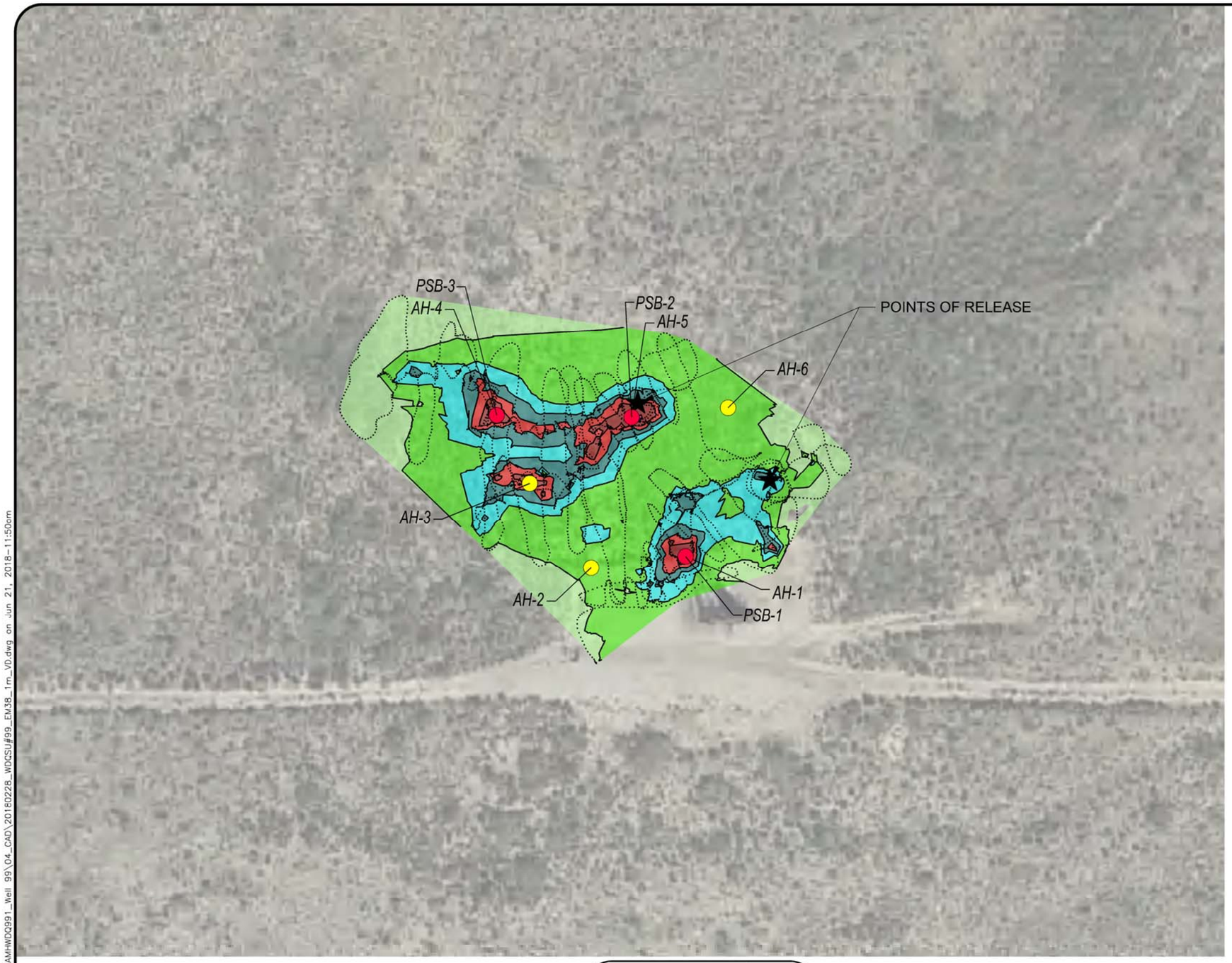

LEGEND

★ LOCATION OF RELEASE POINTS

× LOCATION OF EM38-MK2 GROUND CONDUCTIVITY MEASUREMENT IN mmhos/m

AH-1 LOCATION OF SOIL SAMPLES

PSB-1 PROPOSED SOIL BORING

APPARENT GROUND CONDUCTIVITIES

Minimum mmhos/m	Maximum mmhos/m	Color
0	50	
50	100	
100	150	
150	200	
200	250	
250	300	
300	350+	

N

25 0 25 50
SCALE FEET

NOTES:

1) EM SURVEY PERFORMED BY ENVIRO CLEAN CARDINAL, LLC ON FEBRUARY 28, 2018.
2) EM SURVEY CONDUCTED BY GEORGE H. (BUDDY) RICHARDSON, P.G. USING GEONICS EM38-MK2 GROUND CONDUCTIVITY METER.
3) AERIAL PHOTOGRAPH DATED NOVEMBER 22, 2016, GEOREFERENCED FROM GOOGLE EARTH IMAGE SERVICES.

ENVIRO CLEAN CARDINAL
Enviro Clean Cardinal, LLC
2405 East County Road 123
Midland, Texas 79706
432.301.0209
www.EnviroCleanPS.com

DOCUMENT TITLE: RELEASE CHARACTERIZATION REPORT

FIGURE TITLE: ***PROPOSED SOIL BORING LOCATIONS***

CLIENT: RAM ENERGY RESOURCES TULSA, OKLAHOMA

LOCATION: WEST DOLLARHIDE QUEEN SAND UNIT #99 FLOWLINE RELEASE SECTION 31, T24S, R38E, LEA COUNTY, NEW MEXICO

DESIGNED BY	GHR\JK		
APPROVED BY	GHR\JK	SCALE	1"= 50'
DRAWN BY	SKG	DATE	6/21/2018

PROJECT NUMBER	FIGURE NUMBER
RAMHWDQ991	3

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TABLE

TABLE 1
RAM ENERGY RESOURCES
LABORATORY ANALYTICAL
WEST DOLLARHIDE QUEEN SAND UNIT #99 FLOWLINE RELEASE
NMOCD CASE NO. 1R-4961
LEA COUNTY, NEW MEXICO

NMOCD STANDARDS			-	-	-	1,000	10	-	-	-	50	600
Sample ID	Depth	Sample Date	TPH GRO	TPH DRO	TPH ORO	TOTAL TPH	BENZENE	TOLUENE	ETHYL BENZENE	XYLENES	TOTAL BTEX	CHLORIDES
AH-1	(0-6")	04/19/18	1,800	9,610	830	12,200	<0.002	0.102	0.151	1.16	1.42	1,910
AH-1	(6"-1')	04/19/18	-	-	-	-	-	-	-	-	-	3,070
AH-1	(2')	04/19/18	-	-	-	-	-	-	-	-	-	5,100
AH-1	(3')	04/19/18	-	-	-	-	-	-	-	-	-	7,150
AH-1	(4')	04/19/18	-	-	-	-	-	-	-	-	-	7,280
AH-1	(5')	04/19/18	<15.0	<15.0	<15.0	<15.0	-	-	-	-	-	3,750
AH-2	(0-6")	04/19/18	419	6,210	624	7,250	<0.002	<0.002	0.00508	0.0618	0.0669	2,480
AH-2	(6"-1')	04/19/18	-	-	-	-	-	-	-	-	-	2,510
AH-2	(2')	04/19/18	-	-	-	-	-	-	-	-	-	463
AH-2	(3')	04/19/18	-	-	-	-	-	-	-	-	-	365
AH-2	(4')	04/19/18	-	-	-	-	-	-	-	-	-	785
AH-2	(5')	04/19/18	<15.0	31.0	<15.0	31.0	-	-	-	-	-	1,040
AH-3	(0-6")	4/19/18	<15.0	319	56.8	375.8	<0.00199	<0.00199	<0.00199	0.00358	0.00358	7,290
AH-3	(6"-1')	4/19/18	-	-	-	-	-	-	-	-	-	8,380
AH-4	(0-6")	4/19/18	1,650	12,300	1,310	15,300	<0.00202	0.159	0.402	1.10	1.66	4,150
AH-4	(6"-1)	4/19/18	-	-	-	-	-	-	-	-	-	3,850
AH-4	(2')	4/19/18	-	-	-	-	-	-	-	-	-	5,410
AH-4	(3')	4/19/18	-	-	-	-	-	-	-	-	-	1,870
AH-4	(4')	4/19/18	-	-	-	-	-	-	-	-	-	2,980
AH-4	(5')	4/19/18	93.1	4,670	430	10,383.1	-	-	-	-	-	5,510
AH-5	(0-6")	4/19/18	1,390	10,200	1,070	12,700	0.00241	0.0119	<0.00201	1.05	1.06	1,340
AH-5	(6"-1)	4/19/18	-	-	-	-	-	-	-	-	-	2,170

TABLE 1
RAM ENERGY RESOURCES
LABORATORY ANALYTICAL
WEST DOLLARHIDE QUEEN SAND UNIT #99 FLOWLINE RELEASE
NMOCD CASE NO. 1R-4961
LEA COUNTY, NEW MEXICO

NMOCD STANDARDS			-	-	-	1,000	10	-	-	-	50	600
Sample ID	Depth	Sample Date	TPH GRO	TPH DRO	TPH ORO	TOTAL TPH	BENZENE	TOLUENE	ETHYL BENZENE	XYLENES	TOTAL BTEX	CHLORIDES
AH-5	(2')	4/19/18	-	-	-	-	-	-	-	-	-	5,400
AH-5	(3')	4/19/18	<14.9	41.1	<14.9	41.1	-	-	-	-	-	7,150
AH-6	(0-6")	4/19/18	<14.9	<14.9	<14.9	<14.9	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<5.00
AH-6	(6"-1)	4/19/18	-	-	-	-	-	-	-	-	-	<5.00
AH-6	(2')	4/19/18	-	-	-	-	-	-	-	-	-	<5.00
AH-6	(3')	04/19/18	-	-	-	-	-	-	-	-	-	276

Results are in mg/Kg

ATTACHMENT A

LABORATORY ANALYTICAL

Analytical Report 583117

for

Enviroclean- Midland

Project Manager: Jeff Kindley

Ram #99 Flowline

03-MAY-18

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-18-25), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-17-16), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-17-12)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-17-16)
Xenco-Odessa (EPA Lab Code: TX00158): Texas (T104704400-18-14)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-17-3)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429)
Xenco-Lakeland: Florida (E84098)

03-MAY-18

Project Manager: **Jeff Kindley**
Enviroclean- Midland
2405 ECR 123
Midland, TX 79706

Reference: XENCO Report No(s): **583117**
Ram #99 Flowline
Project Address: Lea County, New Mexico

Jeff Kindley:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 583117. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 583117 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Kelsey Brooks
Project Manager

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.
Certified and approved by numerous States and Agencies.
A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - Midland - San Antonio - Phoenix - Oklahoma - Latin America

Sample Cross Reference 583117

Enviroclean- Midland, Midland, TX

Ram #99 Flowline

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
AH-1 (0-6")	S	04-19-18 15:00		583117-001
AH-1 (6"-1')	S	04-19-18 15:03		583117-002
AH-1 (2')	S	04-19-18 15:05		583117-003
AH-1 (3')	S	04-19-18 15:07		583117-004
AH-1 (4')	S	04-19-18 15:08		583117-005
AH-1 (5')	S	04-19-18 15:10		583117-006
AH-2 (0-6")	S	04-19-18 15:15		583117-007
AH-2 (6"-1')	S	04-19-18 15:18		583117-008
AH-2 (2')	S	04-19-18 15:22		583117-009
AH-2 (3')	S	04-19-18 15:25		583117-010
AH-2 (4')	S	04-19-18 15:27		583117-011
AH-2 (5')	S	04-19-18 15:30		583117-012
AH-3 (0-6")	S	04-19-18 15:40		583117-013
AH-3 (6"-1')	S	04-19-18 15:45		583117-014
AH-4 (0-6")	S	04-19-18 15:50		583117-015
AH-4 (6"-1')	S	04-19-18 15:52		583117-016
AH-4 (2')	S	04-19-18 15:54		583117-017
AH-4 (3')	S	04-19-18 15:55		583117-018
AH-4 (4')	S	04-19-18 15:56		583117-019
AH-4 (5')	S	04-19-18 15:58		583117-020
AH-5 (0-6")	S	04-19-18 16:00		583117-021
AH-5 (6"-1')	S	04-19-18 16:03		583117-022
AH-5 (2')	S	04-19-18 16:06		583117-023
AH-5 (3')	S	04-19-18 16:10		583117-024
AH-6 (0-6")	S	04-19-18 16:20		583117-025
AH-6 (6"-1')	S	04-19-18 16:23		583117-026
AH-6 (2')	S	04-19-18 16:25		583117-027
AH-6 (3')	S	04-19-18 16:30		583117-028

Version: 1.%

CASE NARRATIVE

Client Name: Enviroclean- Midland
Project Name: Ram #99 Flowline

Project ID:
Work Order Number(s): *583117*

Report Date: *03-MAY-18*
Date Received: *04/20/2018*

Sample receipt non conformances and comments:

Client called to take deeper depths off hold for TPH. Samples 006,012,020,024. Rush TAT. Samples break hold 05/03/18 JKR

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3047477 BTEX by EPA 8021B
Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected; data confirmed by re-analysis.
Samples affected are: 583117-001.
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3048018 Inorganic Anions by EPA 300
Lab Sample ID 583117-027 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 583117-008, -009, -010, -011, -012, -013, -014, -015, -016, -017, -018, -019, -020, -021, -022, -023, -024, -027, -028.
The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.

Certificate of Analysis Summary 583117

Enviroclean- Midland, Midland, TX

Project Name: Ram #99 Flowline

Project Id:
Contact: Jeff Kindley
Project Location: Lea County, New Mexico

Date Received in Lab: Fri Apr-20-18 10:00 am
Report Date: 03-MAY-18
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	583117-001		583117-002		583117-003		583117-004		583117-005		583117-006	
	Field Id:	AH-1 (0-6")		AH-1 (6"-1')		AH-1 (2')		AH-1 (3')		AH-1 (4')		AH-1 (5')	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Apr-19-18 15:00		Apr-19-18 15:03		Apr-19-18 15:05		Apr-19-18 15:07		Apr-19-18 15:08		Apr-19-18 15:10	
BTEX by EPA 8021B	***Extracted:***	Apr-21-18 08:30											
	Analyzed:	Apr-22-18 02:55											
	Units/RL:	mg/kg	RL										
Benzene		ND	0.00200										
Toluene		0.102	0.00200										
Ethylbenzene		0.151	0.00200										
m,p-Xylenes		0.777	0.00399										
o-Xylene		0.385	0.00200										
Total Xylenes		1.16	0.00200										
Total BTEX		1.42	0.00200										
Inorganic Anions by EPA 300	***Extracted:***	Apr-25-18 15:30		Apr-25-18 15:30		Apr-25-18 15:30		Apr-25-18 15:30		Apr-25-18 15:30		Apr-25-18 15:30	
	Analyzed:	Apr-26-18 01:20		Apr-26-18 01:25		Apr-26-18 01:31		Apr-26-18 01:37		Apr-26-18 01:43		Apr-26-18 01:49	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		1910	24.9	3070	25.0	5100	49.8	7150	49.9	7280	50.0	3750	24.8
TPH by SW8015 Mod	***Extracted:***	Apr-21-18 10:00										May-01-18 18:00	
	Analyzed:	Apr-21-18 20:35										May-02-18 07:13	
	Units/RL:	mg/kg	RL									mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		1800	150									ND	15.0
Diesel Range Organics (DRO)		9610	150									ND	15.0
Oil Range Hydrocarbons (ORO)		830	150									ND	15.0
Total TPH		12200	150									ND	15.0

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi

Version: 1.%

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 583117

Enviroclean- Midland, Midland, TX

Project Name: Ram #99 Flowline

Project Id:
Contact: Jeff Kindley
Project Location: Lea County, New Mexico

Date Received in Lab: Fri Apr-20-18 10:00 am
Report Date: 03-MAY-18
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	583117-007		583117-008		583117-009		583117-010		583117-011		583117-012	
	Field Id:	AH-2 (0-6")		AH-2 (6"-1')		AH-2 (2')		AH-2 (3')		AH-2 (4')		AH-2 (5')	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Apr-19-18 15:15		Apr-19-18 15:18		Apr-19-18 15:22		Apr-19-18 15:25		Apr-19-18 15:27		Apr-19-18 15:30	
BTEX by EPA 8021B	***Extracted:***	Apr-21-18 08:30											
	Analyzed:	Apr-22-18 03:14											
	Units/RL:	mg/kg	RL										
Benzene		ND	0.00200										
Toluene		ND	0.00200										
Ethylbenzene		0.00508	0.00200										
m,p-Xylenes		0.0295	0.00401										
o-Xylene		0.0323	0.00200										
Total Xylenes		0.0618	0.00200										
Total BTEX		0.0669	0.00200										
Inorganic Anions by EPA 300	***Extracted:***	Apr-25-18 15:30		Apr-26-18 09:00		Apr-26-18 09:00		Apr-26-18 09:00		Apr-26-18 09:00		Apr-26-18 09:00	
	Analyzed:	Apr-26-18 02:07		Apr-26-18 11:28		Apr-26-18 11:34		Apr-26-18 11:40		Apr-26-18 11:46		Apr-26-18 14:02	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		2480	24.9	2510	24.8	463	4.93	365	4.95	785	4.98	1040	4.99
TPH by SW8015 Mod	***Extracted:***	Apr-21-18 10:00										May-01-18 18:00	
	Analyzed:	Apr-21-18 21:35										May-02-18 08:08	
	Units/RL:	mg/kg	RL									mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		419	74.9									ND	15.0
Diesel Range Organics (DRO)		6210	74.9									31.0	15.0
Oil Range Hydrocarbons (ORO)		624	74.9									ND	15.0
Total TPH		7250	74.9									31.0	15.0

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Version: 1.%

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 583117

Enviroclean- Midland, Midland, TX

Project Name: Ram #99 Flowline

Project Id:

Contact: Jeff Kindley

Project Location: Lea County, New Mexico

Date Received in Lab: Fri Apr-20-18 10:00 am

Report Date: 03-MAY-18

Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	583117-013		583117-014		583117-015		583117-016		583117-017		583117-018	
	Field Id:	AH-3 (0-6")		AH-3 (6"-1')		AH-4 (0-6")		AH-4 (6"-1')		AH-4 (2')		AH-4 (3')	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Apr-19-18 15:40		Apr-19-18 15:45		Apr-19-18 15:50		Apr-19-18 15:52		Apr-19-18 15:54		Apr-19-18 15:55	
BTEX by EPA 8021B	***Extracted:***	Apr-21-18 08:30				Apr-21-18 08:30							
	Analyzed:	Apr-22-18 02:36				Apr-22-18 03:53							
	Units/RL:	mg/kg	RL			mg/kg	RL						
Benzene		ND	0.00199			ND	0.00202						
Toluene		ND	0.00199			0.159	0.00202						
Ethylbenzene		ND	0.00199			0.402	0.00202						
m,p-Xylenes		ND	0.00398			0.748	0.00403						
o-Xylene		0.00358	0.00199			0.347	0.00202						
Total Xylenes		0.00358	0.00199			1.10	0.00202						
Total BTEX		0.00358	0.00199			1.66	0.00202						
Inorganic Anions by EPA 300	***Extracted:***	Apr-26-18 09:00		Apr-26-18 09:00		Apr-26-18 09:00		Apr-26-18 09:00		Apr-26-18 09:00		Apr-26-18 09:00	
	Analyzed:	Apr-26-18 13:33		Apr-26-18 13:39		Apr-26-18 13:45		Apr-26-18 13:51		Apr-26-18 13:57		Apr-26-18 14:20	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		7290	99.0	8380	99.2	4150	49.5	3850	49.6	5410	49.9	1870	24.9
TPH by SW8015 Mod	***Extracted:***	Apr-21-18 10:00				Apr-21-18 10:00							
	Analyzed:	Apr-22-18 09:24				Apr-21-18 22:15							
	Units/RL:	mg/kg	RL			mg/kg	RL						
Gasoline Range Hydrocarbons (GRO)		ND	15.0			1650	149						
Diesel Range Organics (DRO)		319	15.0			12300	149						
Oil Range Hydrocarbons (ORO)		56.8	15.0			1310	149						
Total TPH		376	15.0			15300	149						

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Version: 1.%

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 583117

Enviroclean- Midland, Midland, TX

Project Name: Ram #99 Flowline

Project Id:
Contact: Jeff Kindley
Project Location: Lea County, New Mexico

Date Received in Lab: Fri Apr-20-18 10:00 am
Report Date: 03-MAY-18
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	583117-019		583117-020		583117-021		583117-022		583117-023		583117-024	
	Field Id:	AH-4 (4')		AH-4 (5')		AH-5 (0-6")		AH-5 (6"-1')		AH-5 (2')		AH-5 (3')	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Apr-19-18 15:56		Apr-19-18 15:58		Apr-19-18 16:00		Apr-19-18 16:03		Apr-19-18 16:06		Apr-19-18 16:10	
BTEX by EPA 8021B	***Extracted:***					Apr-21-18 08:30							
	Analyzed:					Apr-22-18 03:33							
	Units/RL:					mg/kg	RL						
Benzene						0.00241	0.00201						
Toluene						0.0119	0.00201						
Ethylbenzene						ND	0.00201						
m,p-Xylenes						0.699	0.00402						
o-Xylene						0.346	0.00201						
Total Xylenes						1.05	0.00201						
Total BTEX						1.06	0.00201						
Inorganic Anions by EPA 300	***Extracted:***	Apr-26-18 09:00		Apr-26-18 09:00		Apr-26-18 09:00		Apr-26-18 09:00		Apr-26-18 09:00		Apr-26-18 09:00	
	Analyzed:	Apr-26-18 14:26		Apr-26-18 14:44		Apr-26-18 14:50		Apr-26-18 14:56		Apr-26-18 15:02		Apr-26-18 15:08	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		2980	24.8	5510	49.5	1340	49.5	2170	25.0	5400	50.0	7150	49.8
TPH by SW8015 Mod	***Extracted:***			May-01-18 18:00		Apr-21-18 10:00						May-01-18 18:00	
	Analyzed:			May-02-18 08:37		Apr-21-18 22:35						May-02-18 09:05	
	Units/RL:			mg/kg	RL	mg/kg	RL					mg/kg	RL
Gasoline Range Hydrocarbons (GRO)				93.1	74.9	1390	150					ND	14.9
Diesel Range Organics (DRO)				4670	74.9	10200	150					41.1	14.9
Oil Range Hydrocarbons (ORO)				430	74.9	1070	150					ND	14.9
Total TPH				5190	74.9	12700	150					41.1	14.9

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Version: 1.%

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 583117

Enviroclean- Midland, Midland, TX

Project Name: Ram #99 Flowline

Project Id:
Contact: Jeff Kindley
Project Location: Lea County, New Mexico

Date Received in Lab: Fri Apr-20-18 10:00 am
Report Date: 03-MAY-18
Project Manager: Kelsey Brooks

Analysis Requested	*Lab Id:*	583117-025		583117-026		583117-027		583117-028			
	Field Id:	AH-6 (0-6")		AH-6 (6"-1')		AH-6 (2')		AH-6 (3')			
	Depth:										
	Matrix:	SOIL		SOIL		SOIL		SOIL			
	Sampled:	Apr-19-18 16:20		Apr-19-18 16:23		Apr-19-18 16:25		Apr-19-18 16:30			
BTEX by EPA 8021B	*Extracted:*	Apr-21-18 08:30									
	Analyzed:	Apr-22-18 02:17									
	Units/RL:	mg/kg	RL								
Benzene		ND	0.00199								
Toluene		ND	0.00199								
Ethylbenzene		ND	0.00199								
m,p-Xylenes		ND	0.00398								
o-Xylene		ND	0.00199								
Total Xylenes		ND	0.00199								
Total BTEX		ND	0.00199								
Inorganic Anions by EPA 300	*Extracted:*	Apr-25-18 15:30		Apr-25-18 15:30		Apr-26-18 09:00		Apr-26-18 09:00			
	Analyzed:	Apr-26-18 00:02		Apr-26-18 01:02		Apr-26-18 11:10		Apr-26-18 15:14			
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL		
Chloride		ND	5.00	ND	5.00	ND	5.00	276	4.98		
TPH by SW8015 Mod	*Extracted:*	Apr-21-18 10:00									
	Analyzed:	Apr-21-18 22:55									
	Units/RL:	mg/kg	RL								
Gasoline Range Hydrocarbons (GRO)		ND	14.9								
Diesel Range Organics (DRO)		ND	14.9								
Oil Range Hydrocarbons (ORO)		ND	14.9								
Total TPH		ND	14.9								

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Version: 1.%

Kelsey Brooks
Project Manager

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

***** (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

Form 2 - Surrogate Recoveries

Project Name: Ram #99 Flowline

Work Orders : 583117,

Project ID:

Lab Batch #: 3047493 **Sample:** 583117-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04/21/18 20:35

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	97.2	100	97	70-135	
o-Terphenyl	47.3	50.0	95	70-135	

Lab Batch #: 3047493 **Sample:** 583117-007 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04/21/18 21:35

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	82.4	99.8	83	70-135	
o-Terphenyl	37.9	49.9	76	70-135	

Lab Batch #: 3047493 **Sample:** 583117-015 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04/21/18 22:15

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	88.0	99.6	88	70-135	
o-Terphenyl	43.2	49.8	87	70-135	

Lab Batch #: 3047493 **Sample:** 583117-021 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04/21/18 22:35

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	94.3	99.9	94	70-135	
o-Terphenyl	48.8	50.0	98	70-135	

Lab Batch #: 3047493 **Sample:** 583117-025 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04/21/18 22:55

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	85.5	99.6	86	70-135	
o-Terphenyl	43.0	49.8	86	70-135	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

Version: 1.%

Form 2 - Surrogate Recoveries

Project Name: Ram #99 Flowline

Work Orders : 583117,

Project ID:

Lab Batch #: 3047477 **Sample:** 583117-025 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04/22/18 02:17

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0265	0.0300	88	70-130	
4-Bromofluorobenzene	0.0258	0.0300	86	70-130	

Lab Batch #: 3047477 **Sample:** 583117-013 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04/22/18 02:36

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0271	0.0300	90	70-130	
4-Bromofluorobenzene	0.0246	0.0300	82	70-130	

Lab Batch #: 3047477 **Sample:** 583117-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04/22/18 02:55

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0231	0.0300	77	70-130	
4-Bromofluorobenzene	0.0443	0.0300	148	70-130	**

Lab Batch #: 3047477 **Sample:** 583117-007 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04/22/18 03:14

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0292	0.0300	97	70-130	
4-Bromofluorobenzene	0.0317	0.0300	106	70-130	

Lab Batch #: 3047477 **Sample:** 583117-021 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04/22/18 03:33

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0235	0.0300	78	70-130	
4-Bromofluorobenzene	0.0336	0.0300	112	70-130	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

Version: 1.%

Form 2 - Surrogate Recoveries

Project Name: Ram #99 Flowline

Work Orders : 583117,

Project ID:

Lab Batch #: 3047477 **Sample:** 583117-015 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04/22/18 03:53

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0238	0.0300	79	70-130	
4-Bromofluorobenzene	0.0358	0.0300	119	70-130	

Lab Batch #: 3047493 **Sample:** 583117-013 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04/22/18 09:24

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	100	99.8	100	70-135	
o-Terphenyl	54.5	49.9	109	70-135	

Lab Batch #: 3048686 **Sample:** 583117-006 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 05/02/18 07:13

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	93.6	99.8	94	70-135	
o-Terphenyl	47.6	49.9	95	70-135	

Lab Batch #: 3048686 **Sample:** 583117-012 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 05/02/18 08:08

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	100	99.7	100	70-135	
o-Terphenyl	51.7	49.9	104	70-135	

Lab Batch #: 3048686 **Sample:** 583117-020 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 05/02/18 08:37

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	106	99.8	106	70-135	
o-Terphenyl	37.8	49.9	76	70-135	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

Version: 1.%

Form 2 - Surrogate Recoveries

Project Name: Ram #99 Flowline

Work Orders : 583117,

Project ID:

Lab Batch #: 3048686 **Sample:** 583117-024 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 05/02/18 09:05

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	97.5	99.6	98	70-135	
o-Terphenyl	49.5	49.8	99	70-135	

Lab Batch #: 3047493 **Sample:** 7643148-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 04/21/18 15:56

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	84.7	100	85	70-135	
o-Terphenyl	45.1	50.0	90	70-135	

Lab Batch #: 3047477 **Sample:** 7643133-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 04/21/18 20:49

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0275	0.0300	92	70-130	
4-Bromofluorobenzene	0.0248	0.0300	83	70-130	

Lab Batch #: 3048686 **Sample:** 7643914-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 05/01/18 21:40

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	101	100	101	70-135	
o-Terphenyl	51.7	50.0	103	70-135	

Lab Batch #: 3047493 **Sample:** 7643148-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 04/21/18 16:16

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	101	100	101	70-135	
o-Terphenyl	50.0	50.0	100	70-135	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

Version: 1.%

Form 2 - Surrogate Recoveries

Project Name: Ram #99 Flowline

Work Orders : 583117,

Project ID:

Lab Batch #: 3047477 **Sample:** 7643133-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 04/21/18 18:53

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0315	0.0300	105	70-130	
4-Bromofluorobenzene	0.0291	0.0300	97	70-130	

Lab Batch #: 3048686 **Sample:** 7643914-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 05/01/18 22:06

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	111	100	111	70-135	
o-Terphenyl	54.7	50.0	109	70-135	

Lab Batch #: 3047493 **Sample:** 7643148-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 04/21/18 16:36

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	102	100	102	70-135	
o-Terphenyl	49.4	50.0	99	70-135	

Lab Batch #: 3047477 **Sample:** 7643133-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 04/21/18 19:13

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0291	0.0300	97	70-130	
4-Bromofluorobenzene	0.0261	0.0300	87	70-130	

Lab Batch #: 3048686 **Sample:** 7643914-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 05/01/18 22:33

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	111	100	111	70-135	
o-Terphenyl	54.4	50.0	109	70-135	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

Version: 1.%

Form 2 - Surrogate Recoveries

Project Name: Ram #99 Flowline

Work Orders : 583117,

Project ID:

Lab Batch #: 3047493 **Sample:** 583105-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04/21/18 17:15

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	108	99.7	108	70-135	
o-Terphenyl	50.4	49.9	101	70-135	

Lab Batch #: 3047477 **Sample:** 582929-002 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04/21/18 19:32

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0307	0.0300	102	70-130	
4-Bromofluorobenzene	0.0280	0.0300	93	70-130	

Lab Batch #: 3048686 **Sample:** 584082-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 05/01/18 23:27

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	105	100	105	70-135	
o-Terphenyl	52.8	50.0	106	70-135	

Lab Batch #: 3047493 **Sample:** 583105-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04/21/18 17:34

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	106	99.9	106	70-135	
o-Terphenyl	52.9	50.0	106	70-135	

Lab Batch #: 3047477 **Sample:** 582929-002 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04/21/18 19:51

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0312	0.0300	104	70-130	
4-Bromofluorobenzene	0.0295	0.0300	98	70-130	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

Version: 1.%

Form 2 - Surrogate Recoveries

Project Name: Ram #99 Flowline

Work Orders : 583117,

Project ID:

Lab Batch #: 3048686 **Sample:** 584082-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 05/01/18 23:54

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	105	99.9	105	70-135	
o-Terphenyl	51.8	50.0	104	70-135	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

Version: 1.%

BS / BSD Recoveries

Project Name: Ram #99 Flowline

Work Order #: 583117 **Project ID:**

Analyst: ALJ **Date Prepared:** 04/21/2018 **Date Analyzed:** 04/21/2018

Lab Batch ID: 3047477 **Sample:** 7643133-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00200	0.0998	0.122	122	0.100	0.112	112	9	70-130	35	
Toluene	<0.00200	0.0998	0.115	115	0.100	0.105	105	9	70-130	35	
Ethylbenzene	<0.00200	0.0998	0.114	114	0.100	0.102	102	11	70-130	35	
m,p-Xylenes	<0.00399	0.200	0.246	123	0.200	0.215	108	13	70-130	35	
o-Xylene	<0.00200	0.0998	0.119	119	0.100	0.106	106	12	70-130	35	

Analyst: SCM **Date Prepared:** 04/25/2018 **Date Analyzed:** 04/25/2018

Lab Batch ID: 3047948 **Sample:** 7643398-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<5.00	250	254	102	250	242	97	5	90-110	20	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

Version: 1.%

BS / BSD Recoveries

Project Name: Ram #99 Flowline

Work Order #: 583117 **Project ID:**

Analyst: SCM **Date Prepared:** 04/26/2018 **Date Analyzed:** 04/26/2018

Lab Batch ID: 3048018 **Sample:** 7643495-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<5.00	250	259	104	250	258	103	0	90-110	20	

Analyst: ARM **Date Prepared:** 04/21/2018 **Date Analyzed:** 04/21/2018

Lab Batch ID: 3047493 **Sample:** 7643148-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	992	99	1000	1090	109	9	70-135	20	
Diesel Range Organics (DRO)	<15.0	1000	957	96	1000	988	99	3	70-135	20	

Analyst: ARM **Date Prepared:** 05/01/2018 **Date Analyzed:** 05/01/2018

Lab Batch ID: 3048686 **Sample:** 7643914-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	1020	102	1000	1010	101	1	70-135	20	
Diesel Range Organics (DRO)	<15.0	1000	1150	115	1000	1130	113	2	70-135	20	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

Version: 1.%

Form 3 - MS / MSD Recoveries

Project Name: Ram #99 Flowline

Work Order # : 583117 **Project ID:**

Lab Batch ID: 3047477 **QC- Sample ID:** 582929-002 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 04/21/2018 **Date Prepared:** 04/21/2018 **Analyst:** ALJ

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00202	0.101	0.100	99	0.100	0.101	101	1	70-130	35	
Toluene	<0.00202	0.101	0.0942	93	0.100	0.0933	93	1	70-130	35	
Ethylbenzene	<0.00202	0.101	0.0922	91	0.100	0.0927	93	1	70-130	35	
m,p-Xylenes	<0.00403	0.202	0.191	95	0.200	0.191	96	0	70-130	35	
o-Xylene	<0.00202	0.101	0.0952	94	0.100	0.0951	95	0	70-130	35	

Lab Batch ID: 3047948 **QC- Sample ID:** 583117-025 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 04/26/2018 **Date Prepared:** 04/25/2018 **Analyst:** SCM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<5.00	250	248	99	250	249	100	0	90-110	20	

Lab Batch ID: 3047948 **QC- Sample ID:** 583117-026 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 04/26/2018 **Date Prepared:** 04/25/2018 **Analyst:** SCM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<5.00	250	252	101	250	261	104	4	90-110	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Form 3 - MS / MSD Recoveries

Project Name: Ram #99 Flowline

Work Order # : 583117 **Project ID:**

Lab Batch ID: 3048018 **QC- Sample ID:** 583117-012 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 04/26/2018 **Date Prepared:** 04/26/2018 **Analyst:** SCM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	1040	250	1230	76	250	1230	76	0	90-110	20	X

Lab Batch ID: 3048018 **QC- Sample ID:** 583117-027 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 04/26/2018 **Date Prepared:** 04/26/2018 **Analyst:** SCM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<5.00	250	258	103	250	265	106	3	90-110	20	

Lab Batch ID: 3047493 **QC- Sample ID:** 583105-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 04/21/2018 **Date Prepared:** 04/21/2018 **Analyst:** ARM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	997	867	87	999	869	87	0	70-135	20	
Diesel Range Organics (DRO)	<15.0	997	905	91	999	920	92	2	70-135	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Form 3 - MS / MSD Recoveries

Project Name: Ram #99 Flowline

Work Order # : 583117 **Project ID:**

Lab Batch ID: 3048686 **QC- Sample ID:** 584082-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 05/01/2018 **Date Prepared:** 05/01/2018 **Analyst:** ARM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	1000	100	999	1000	100	0	70-135	20	
Diesel Range Organics (DRO)	<15.0	1000	1100	110	999	1110	111	1	70-135	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

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Xenco Quote #:

Xenco Job #: 583117

Client / Reporting Information

Company Name / Branch: Enviro Clean

Company Address: 2405 E. County Road 123 Midland, Tx 79706

Email: Jeffrey.Kindley@eccgrp.com

Phone No: 432-305-6214

Project Contact: Jeffrey Kindley

Samplers's Name: Travis Morgan / Casey Smith

Project Information

Project Name/Number: RAM #99 Flowline

Project Location: Lea County, New Mexico

Invoice To: Enviro Clean, 2405 E. County Road 123, Midland, Tx 79706

PO Number:

Analytical Information

No.	Field ID / Point of Collection	Sample Depth	Collection Date	Collection Time	Matrix	# of bottles	HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	TPH 8015M *	BTEX **	Chlorides	Field Comments
1	AH-1 (0-6")		04/19/18	1500	S	1								✓	✓	✓	✓	
2	AH-1 (6"-1')		04/19/18	1503	S	1								✓			✓	
3	AH-1 (2')		04/19/18	1505	S	1								✓			✓	
4	AH-1 (3')		04/19/18	1507	S	1								✓			✓	
5	AH-1 (4')		04/19/18	1508	S	1								✓			✓	
6	AH-1 (5')		04/19/18	1510	S	1								✓			✓	
7	AH-2 (0-6")		04/19/18	1515	S	1								✓	✓	✓	✓	
8	AH-2 (6"-1')		04/19/18	1518	S	1								✓			✓	
9	AH-2 (2')		04/19/18	1522	S	1								✓			✓	
10	AH-2 (3')		04/19/18	1525	S	1								✓			✓	

Matrix Codes

W = Water
S = Soil/Sed/Solid
GW = Ground Water
DW = Drinking Water
P = Product
SW = Surface Water
SL - Sludge
OW = Ocean/Sea Water
WI = Wipe
O = Oil
WW = Waste Water
A = Air

Temp: 4.9 IR ID:R-8
CF:(0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: 4.7

Turnaround Time (Business days)

- [ ] Same Day TAT
- [ ] 5 Day TAT
- [ ] Next Day EMERGENCY
- [ ] 7 Day TAT
- [ ] 2 Day EMERGENCY
- [ ] Contract TAT
- [ ] 3 Day EMERGENCY

TAT Starts Day received by Lab, if received by 5:00 pm

Data Deliverable Information

- [ ] Level II Std QC
- [ ] Level IV (Full Data Pkg /raw data)
- [ ] Level III Std QC+ Forms
- [ ] TRRP Level IV
- [ ] Level 3 (CLP Forms)
- [ ] UST / RG -411
- [ ] Level II Report with TRRP checklist

Notes:

* IF TPH total is ≥ 1,000 mg/Kg run next largest sample ~~outward~~ continue until TPH ≤ 1000 mg/Kg

** IF Benzene is 10 mg/Kg or greater and Total BTEX is ≥ 50 mg/Kg run next sample down until both are below 10 mg/Kg / 50 mg/Kg

FED-EX / UPS: Tracking #

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 Jeffrey Kindley	04/20/18 1000	1	2		2
Relinquished by: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #	Preserved where applicable	On Ice / Cooler Temp. / Thermo. Corr. Factor

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Phoenix, AZ (480) 355-0900
Service Center - Baton Rouge, LA (832) 712-8143
Service Center- Amarillo, TX (806)678-4514
Service Center- Hobbs, NM (575) 392-7550

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Xenco Quote #

Xenco Job # 583117

Client / Reporting Information

Company Name / Branch: Enviro Clean

Company Address: 2405 E County Road 123 Midland, Tx 79706

Email: Jeffrey.Kindley@eccgrp.com

Phone No: 432-305-6214

Project Contact: Jeffrey Kindley

Samplers's Name: Travis Morgan / Casey Smith

Project Information

Project Name/Number: RAM #99 Flowline

Project Location: Lea County, New Mexico

Invoice To: Enviro Clean 2405 E County Road 123 Midland, Texas 79706

PO Number:

Analytical Information

No.	Field ID / Point of Collection	Sample Depth	Collection Date	Collection Time	Matrix	# of bottles	HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	TPH 8015 M *	BTEX **	Chlorides	Field Comments
1	AH-2 (4')		04/19/18	1527	S	1								✓			✓	
2	AH-2 (5')		04/19/18	1530	S	1								✓			✓	
3	AH-3 (0-6")		04/19/18	1540	S	1								✓	✓	✓	✓	
4	AH-3 (6"-1')		04/19/18	1545	S	1								✓			✓	
5	AH-4 (0-6")		04/19/18	1550	S	1								✓	✓	✓	✓	
6	AH-4 (6"-1')		04/19/18	1552	S	1								✓			✓	
7	AH-4 (2')		04/19/18	1554	S	1								✓			✓	
8	AH-4 (3')		04/19/18	1555	S	1								✓			✓	
9	AH-4 (4')		04/19/18	1556	S	1								✓			✓	
10	AH-4 (5')		04/19/18	1558	S	1								✓			✓	

Matrix Codes

W = Water
S = Soil/Sed/Solid
GW = Ground Water
DW = Drinking Water
P = Product
SW = Surface Water
SL - Sludge
OW = Ocean/Sea Water
WI = Wipe
O = Oil
WW = Waste Water
A = Air

Turnaround Time (Business days)

- ☐ Same Day TAT
- ☐ 5 Day TAT
- ☐ Next Day EMERGENCY
- ☐ 7 Day TAT
- ☐ 2 Day EMERGENCY
- ☐ Contract TAT
- ☐ 3 Day EMERGENCY

TAT Starts Day received by Lab, if received by 5:00 pm

Data Deliverable Information

- ☐ Level II Std QC
- ☐ Level IV (Full Data Pkg /raw data)
- ☐ Level III Std QC+ Forms
- ☐ TRRP Level IV
- ☐ Level 3 (CLP Forms)
- ☐ UST / RG -411
- ☐ Level II Report with TRRP checklist

Notes:

* IF TPH total is ≥ 1000 mg/kg run next deepest sample. Continue until TPH is < 1000 mg/kg

** IF Benzene is 10 mg/kg or greater and/or Total BTEX is 50 mg/kg or greater run next deeper sample until both are below 10 mg/kg (benzene) and 50 mg/kg (Total BTEX)

FED-EX / UPS: Tracking #

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	04/20/18 1000	1	2		2
Relinquished by: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #	Preserved where applicable ☐	

Temp: 4.9 IR ID:R-8
CF:(0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: 4.7

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Service Center- Hobbs, NM (575) 392-7550

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Xenco Quote #

Xenco Job # 583117

Client / Reporting Information

Company Name / Branch: Enviro Clean

Company Address: 2405 E. County Road 123 Midland, Tx 79706

Email: Jeffrey.Kindley@eccgrp.com

Phone No: 432-305-6214

Project Contact: Jeffrey Kindley

Samplers's Name: Travis Morgan / Casey Smith

Project Information

Project Name/Number: RAM #99 Flowline

Project Location: Lea County, New Mexico

Invoice To: Enviro Clean, 2405 E County Road 123, Midland, Texas 79706

PO Number:

Analytical Information

No.	Field ID / Point of Collection	Sample Depth	Date	Time	Matrix	# of bottles	HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	TPH 8015 M *	BTEX **	Chlorides	Field Comments
1	AH-5 (0-6")		04/19/18	1600	S	1								✓	✓	✓	✓	
2	AH-5 (6"-1')		04/19/18	1603	S	1								✓			✓	
3	AH-5 (2')		04/19/18	1606	S	1								✓			✓	
4	AH-5 (3')		04/19/18	1610	S	1								✓			✓	
5	AH-6 (0-6")		04/19/18	1620	S	1								✓	✓	✓	✓	
6	AH-6 (6"-1')		04/19/18	1623	S	1								✓			✓	
7	AH-6 (2')		04/19/18	1625	S	1								✓			✓	
8	AH-6 (3')		04/19/18	1630	S	1								✓			✓	
9																		
10																		

Matrix Codes

W = Water
S = Soil/Sed/Solid
GW = Ground Water
DW = Drinking Water
P = Product
SW = Surface Water
SL - Sludge
OW = Ocean/Sea Water
WI = Wipe
O = Oil
WW = Waste Water
A = Air

Turnaround Time (Business days)

- [ ] Same Day TAT
- [ ] 5 Day TAT
- [ ] Next Day EMERGENCY
- [ ] 7 Day TAT
- [ ] 2 Day EMERGENCY
- [ ] Contract TAT
- [ ] 3 Day EMERGENCY

TAT Starts Day received by Lab, if received by 5:00 pm

Data Deliverable Information

- [ ] Level II Std QC
- [ ] Level IV (Full Data Pkg /raw data)
- [ ] Level III Std QC+ Forms
- [ ] TRRP Level IV
- [ ] Level 3 (CLP Forms)
- [ ] UST / RG -411
- [ ] Level II Report with TRRP checklist

Notes:

* If TPH total is ≥ 1000 mg/kg run next deepest sample. Continue until TPH is < 1000 mg/kg

* If Benzene is 10 mg/kg or greater and/or Total BTEX is 50 mg/kg or greater run next deepest sample until both are below 10 mg/kg (benzene) and 50 mg (total BTEX)

FED-EX / UPS: Tracking #

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	[signature]	04/20/18 1000	[signature]	2		2
3	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
			3	4		4
5	Relinquished by:	Date Time:	Received By:	Custody Seal #	Preserved where applicable	
			5			

Temp: 4.9 IR ID:R-8
CF:(0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: 4.7

XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In

Client: Enviroclean- Midland

Date/ Time Received: 04/20/2018 10:00:00 AM

Work Order #: 583117

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist		Comments
#1 *Temperature of cooler(s)?	4.7	
#2 *Shipping container in good condition?	**Yes**	
#3 *Samples received on ice?	**Yes**	
#4 *Custody Seals intact on shipping container/ cooler?	**N/A**	
#5 Custody Seals intact on sample bottles?	**N/A**	
#6*Custody Seals Signed and dated?	**N/A**	
#7 *Chain of Custody present?	**Yes**	
#8 Any missing/extra samples?	**No**	
#9 Chain of Custody signed when relinquished/ received?	**Yes**	
#10 Chain of Custody agrees with sample labels/matrix?	**Yes**	
#11 Container label(s) legible and intact?	**Yes**	
#12 Samples in proper container/ bottle?	**Yes**	TPH received in bulk container
#13 Samples properly preserved?	**Yes**	
#14 Sample container(s) intact?	**Yes**	
#15 Sufficient sample amount for indicated test(s)?	**Yes**	
#16 All samples received within hold time?	**Yes**	
#17 Subcontract of sample(s)?	**No**	
#18 Water VOC samples have zero headspace?	**N/A**	

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst: PH Device/Lot#:

Checklist completed by: Kelsey Brooks Date: 04/24/2018

Checklist reviewed by: Date: 04/20/2018

ROSE ROCK™
ENVIRONMENTAL SERVICES

September 30, 2021

Mr. Darrell Pennington
Ram Energy LLC
5100 E Skelly Drive
Tulsa, OK 74135

Submitted via email: dpennington@ramenergy.net

Re: Proposed Soil Remediation Work Plan Update
West Dollarhide Queen Sand Unit #99 Flowline Release
NMOCD Case No. 1RP-4961
Lea County, New Mexico

Dear Mr. Pennington,

Rose Rock Environmental Services, LLC (Rose Rock) has been retained by Ram Energy, LLC (Client) to review previously prepared documents pertaining to the original and historical releases as well as provide a Proposed Soil Remediation Work Plan for Client's West Dollarhide Queen Sand Unit (WDQSU) #99 Flowline (Site) located in Unit Letter I, Section 31, Township 24 South, Range 38 East of Lea County, New Mexico (geographical coordinates 32.1703148N, 103.0941925W). The Site is approximately one and seven tenths (1.7) mile west of the New Mexico/Texas state line and seven (7) miles northeast of Jal, New Mexico.

Brief Company Overview

Rose Rock is a privately owned environmental consulting and field services company, headquartered in Oklahoma City, that combines years of professional experience with innovative thinking. We understand the importance of maintaining environmental compliance but recognize that out of control spending is not required for environmental responsibility. Providing simple solutions for complex problems with communication and customer service is always at the forefront.

Recent Review of Site

On June 29, 2021, Rose Rock was provided all Client files pertaining to this release. Rock Rock personnel reviewed the information from the Shallow Soil Assessment and the Deep Soil Assessment, including but not limited to maps, soil sampling laboratory analytical results, electromagnetic (EM) survey results, soil boring logs, on-site photos, and historical aerial photographs.

Additionally, a field visit was conducted by Rose Rock on September 20, 2021, to review the Site.

Proposed Soil Remediation

The objective of this Proposed Soil Remediation Work Plan Update is to propose soil remediation to address the impacts at the Site resulting from the January 31, 2018, release as well as the historic

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releases predating Client's operation at the Site. The proposed remediation will be protective of groundwater.

The constituent that is the driver for soil remediation is chloride. The proposed remediation work plan is to excavate the impacted media coupled with off-site disposal. Rose Rock recommends the removal and replacement of Site soils that exceed the RRALs and the chloride cleanup level. Rose Rock proposes that the upper 4 feet of soil be excavated for all impacted areas totaling an estimated 1,360 cubic yards which is expected to be removed. Following the removal of the impacted soil, confirmation samples from the sidewalls and bottom of the excavation will be collected and analyzed to confirm that the impacted soil has been removed. A liner will then be installed at the base of the excavation. The excavation will then be backfilled with clean fill from an acceptable source and compacted to existing grade.

Rose Rock hopes Ram Energy LLC as well as the New Mexico Oil Conservation Division will find this Proposed Soil Remediation Work Plan Update appropriate and compliant and will approve the remediation work plan proposed herein. If you have any questions, please do not hesitate to contact any of the Rose Rock representatives listed below.

Sincerely,
Rose Rock Environmental Services, LLC

Jonathan Behymer
Partner
405-990-4225/cell
jb@roserockenv.com

ALTAMIRA
formerly known as Enviro Clean Cardinal

September 8, 2019

Mr. Brad Billings
Environmental Bureau
New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

SUBMITTED VIA EMAIL
Bradford.Billings@state.nm.us

Re: Proposed Soil Remediation Work Plan
West Dollarhide Queen Sand Unit #99 Flowline Release
NMOCD Case No. 1RP-4961
Lea County, New Mexico

Dear Mr. Billings:
Altamira (formerly Enviro Clean Cardinal, LLC) has been retained by RAM Energy (RAM) to prepare a Soil Remediation Work Plan for RAM's West Dollarhide Queen Sand Unit (WDQSU) #99 flowline (Site) located in Unit Letter I, Section 31, Township 24 South, Range 38 East of Lea County, New Mexico (geographical coordinates 32.1703148N, 103.0941925W). The Site is approximately one and seven tenths (1.7) mile west of the New Mexico/Texas state line and seven (7) miles northeast of Jal, New Mexico. The Site location and topographical features are shown on the attached *Figure 1*.

The objective of this Proposed Soil Remediation Work Plan is to detail findings to date and to propose soil remediation to address the impacts at the Site resulting from the January 31st, 2018 release, as well as historic releases predating RAM's operation at the Site. The proposed remediation will be protective of groundwater.

Shallow Soil Assessment
On February 28, 2018, Altamira performed an electromagnetic (EM) terrain conductivity survey of the Site in order to better delineate the release for response planning. The EM survey results (*Figure 2*) indicated that there were two points of release, which was consistent with Altamira's visual assessment of the site and information gained by interviews with Site personnel.

Based upon these findings, RAM submitted a Release Characterization Work Plan to New Mexico Oil Conservation Division (NMOCD) on March 12, 2018 (*Appendix A*) which proposed the installation of six hand-augered soil borings to a depth of five (5) feet below ground surface (bgs) or refusal. Samples collected from the borings were to be assessed for Total Petroleum Hydrocarbons (TPH); benzene, toluene, ethylbenzene, and xylenes (BTEX); and chlorides. The work plan was approved by NMOCD via email on April 10, 2018.

On April 19, 2018, Altamira installed the six soil borings and completed sampling and analysis, as prescribed by the approved work plan. The deepest samples of soil from five of the six borings had reported concentrations of chloride above the NMOCD action level of 600 ppm.

On July 23, 2018, RAM submitted a Release Characterization Work Plan Update (*Appendix A*) to NMOCD which included the results of the shallow soil assessment, as well as a plan to complete vertical delineation of hydrocarbon and chloride impact at the Site. The work plan proposed the installation of three air rotary drill rig soil borings and the collection and analysis of soil samples. Samples were to be assessed for TPH, BTEX, and chlorides. The work plan was approved by NMOCD via email on August 3, 2018.

Deep Soil Assessment

On February 12, 2019, Scarborough Drilling (Lamessa, Texas) completed three soil borings with a Midway 1500 air-rotary drill rig at the site, under the supervision of Altamira. The boring locations (*Figure 3*) were selected per the New Mexico Oil Conservation Division (NMOCD) approved work plans and subsequent communications with RAM Energy Resources, Inc. (RAM) and the NMOCD.

Soil and cutting samples were collected and described at five-foot intervals. Samples were also field-analyzed for estimated chloride concentration using a conductivity meter and Mettler Toledo scale, to help determine the necessary depth of borings to meet the NMOCD requirement for soil delineation to a depth at which chloride concentration <600 mg/kg. Soil boring logs with field estimates of chloride concentration are included as *Figure 4*.

The depths of the borings (in feet bgs) were as follows:

- #99 Flowline, SB-1 – 35 feet
- #99 Flowline, SB-2 – 95 feet
- #99 Flowline, SB-3 – 65 feet

Note that SB-1 was terminated at 35 feet bgs because field screening of chloride concentration indicated that chloride concentration was likely below 600 ppm for three successive sampling intervals. However, the field screening estimation for chloride concentration was not confirmed by laboratory results.

None of the borings reached top of groundwater. Top of bedrock (red shale with subordinate sandstone) was at a depth of approximately 64 feet bgs in SB-2 and at a depth of approximately 60 feet bgs in SB-3. Top of bedrock was not reached in SB-1.

All samples were collected in 4-ounce jars and transferred to the lab under proper chain of custody. The samples were analyzed by XENCO Laboratories (XENCO) in Midland, Texas for chlorides using EPA Method 300. Additionally, the uppermost soil sample (four to five feet bgs) were also analyzed for Total Petroleum Hydrocarbons (TPH) utilizing EPA Method SW8015 and benzene, toluene, ethylbenzene, and xylenes (BTEX) using EPA Method 8021B.

XENCO provided analytical results for the samples to Altamira on February 20, 2018. A summary of the laboratory analytical results for the deep soil sampling events is included as Table 1, with results above laboratory detection limits in bold and NMOCD cleanup criteria exceedances highlighted in yellow. The complete laboratory analytical reports are attached as *Appendix C*.

Based upon the analytical results for the soil samples, soil with concentrations of chloride exceeding NMOCD cleanup standards are present to the top of bedrock at the #99 Flowline site. Two successive sample concentrations below 600 ppm of chloride were not reported from any of the three soil borings. BTEX was not reported above laboratory detection limits from any of the soil boring samples. TPH was not reported above laboratory detection limits in samples from two of the soil borings. In SB-2, TPH was detected at slightly above the laboratory detection limit, but well below the NMOCD groundwater protection value.

Discussion of Deep Soil Assessment Results

The depth of chloride impact to soil was initially unexpected based upon the size, age, and nature of the release, as well as the relatively shallow impact of BTEX and TPH (all but one sample exceedance occurring in only the upper six inches of soil). Additionally, the vertical

delineation analytical results indicate that chloride concentrations "yo-yo;" concentrations decrease with depth, but then spike, followed by a deeper "decreasing concentration with depth" trend. This type of stacked "decreasing with depth" trend is typical for soil that has been impacted by multiple chloride releases over a long period of time.

To further understand the unexpected deep and irregular chloride impact of site soil, Altamira reviewed historical aerial photographs of the site and hydrogeologically-upgradient areas (to the west). Based upon this review, it seems likely that SB-2 and SB-3 are located within a historic reserve pit and that two additional historic reserve pits are located less than 1,000 feet upgradient from the well (*Appendix D*). It is likely that the high concentrations of chlorides at depths below 19 to 24 feet bgs are the result of historic releases, possibly from materials placed in the onsite and upgradient reserve pits.

Proposed Soil Remediation

The constituent that is the driver for soil remediation is chloride. Since chloride cannot be reduced using degradation processes, the proposed remedial option is the excavation of impacted media coupled with off-site disposal. Altamira recommends the removal and replacement of Site soils that exceed the RRALs and the chloride cleanup level. The proposed remediation areas are shown on *Figure 5*.

Because data collected by Altamira indicates that soil impacted by the January 31st, 2018 release has concentrations of chloride above 600 ppm to depths exceeding four (4) feet bgs, Altamira proposes that the upper 4 feet of soil be excavated for all areas which have been impacted by the release. The areal extent of this remediation area measures 9,180 square feet. An estimated volume of 1,360 cubic yards of soil (in-situ) is expected to be removed. Sidewall samples will be collected to confirm that impacted soil has been removed. Following confirmation of appropriate excavation, a 20-mil synthetic liner will be installed at the base of the excavation. The excavation will then be backfilled with clean fill from an acceptable source and compacted to existing grade.

Altamira hopes the NMOCD will find this Proposed Soil Remediation Work Plan appropriate and compliant and will approves the remediation work proposed herein. If you have questions regarding this document, please do not hesitate to contact Mr. Darrell Pennington at RAM at 918-947-6304 or me at 713-208-6481.

Sincerely,

David Lehmann, M.S.T.C., Ph.D., P.G.
Senior Project Manager I Altamira
713.208.6481 office I 281.757.5054 cell

Attachments

Table:

- *1 – Soil Sampling Analytical Results*

Figures:

- *1 – Site Location Map*

(continued on next page)

- *2 – EM Survey Results*
- *3 – Soil Boring Location Map*
- *4 – Soil Boring Logs*
- *5 – Proposed Remediation Area*

Appendices:

- *A – Release Characterization Work Plan*
- *B – Release Characterization Work Plan Update*
- *C – Laboratory Analytical Results*
- *D – Historic Aerial Photographs*

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Tables

Table 1: RAM Energy, West Dollarhide, #99 Flowline, Soil Sample Analytical Results – Sampling Even 2/12/2019

Boring ID	Sample Depth (bgs)	Sample Date	GRO (mg/kg)	DRO (mg/kg)	MRO (mg/kg)	Total TPH (mg/kg)	Benzene mg/kg	Toluene mg/kg	Ethyl-benzene mg/kg	Total Xylenes mg/kg	Chlorides (mg/kg)
SB-1	4 – 5’	2/12/19	<15.0	<15.0	<15.0	<15.0	<0.00202	<0.00202	<0.00202	<0.00202	**6,420**
SB-1	9 – 10’	2/12/19	NA	NA	NA	NA	NA	NA	NA	NA	**5,000**
SB-1	14 – 15’	2/12/19	NA	NA	NA	NA	NA	NA	NA	NA	**3,050**
SB-1	19 – 20’	2/12/19	NA	NA	NA	NA	NA	NA	NA	NA	**350**
SB-1	24 – 25’	2/12/19	NA	NA	NA	NA	NA	NA	NA	NA	**676**
SB-1	29 – 30’	2/12/19	NA	NA	NA	NA	NA	NA	NA	NA	**113**
SB-1	34 – 35’	2/12/19	NA	NA	NA	NA	NA	NA	NA	NA	**1,230**
SB-2	4 – 5’	2/12/19	<14.9	**26.5**	<14.9	**26.5**	<0.00200	<0.00200	<0.00200	<0.00200	**4,170**
SB-2	9 – 10’	2/12/19	NA	NA	NA	NA	NA	NA	NA	NA	**6,340**
SB-2	14 – 15’	2/12/19	NA	NA	NA	NA	NA	NA	NA	NA	**7,480**
SB-2	19 – 20’	2/12/19	NA	NA	NA	NA	NA	NA	NA	NA	**7,400**
SB-2	24 – 25’	2/12/19	NA	NA	NA	NA	NA	NA	NA	NA	**3,920**
SB-2	29 – 30’	2/12/19	NA	NA	NA	NA	NA	NA	NA	NA	**5,130**
SB-2	34 – 35’	2/12/19	NA	NA	NA	NA	NA	NA	NA	NA	**5,370**
SB-2	39 – 40’	2/12/19	NA	NA	NA	NA	NA	NA	NA	NA	**4,730**
SB-2	44 – 45’	2/12/19	NA	NA	NA	NA	NA	NA	NA	NA	**4,180**
SB-2	49 – 50’	2/12/19	NA	NA	NA	NA	NA	NA	NA	NA	**5,940**
SB-2	54 – 55’	2/12/19	NA	NA	NA	NA	NA	NA	NA	NA	**5,330**
SB-2	59 – 60’	2/12/19	NA	NA	NA	NA	NA	NA	NA	NA	**5,980**
SB-2	64 – 65’	2/12/19	NA	NA	NA	NA	NA	NA	NA	NA	**913**
SB-2	69 – 70’	2/12/19	NA	NA	NA	NA	NA	NA	NA	NA	**638**

Boring ID	Sample Depth (bgs)	Sample Date	GRO (mg/kg)	DRO (mg/kg)	MRO (mg/kg)	Total TPH (mg/kg)	Benzene mg/kg	Toluene mg/kg	Ethyl-benzene mg/kg	Total Xylenes mg/kg	Chlorides (mg/kg)
SB-3	4 – 5’	2/12/19	<15.0	<15.0	<15.0	<15.0	<0.00201	<0.00201	<0.00201	<0.00201	**6,350**
SB-3	9 – 10’	2/12/19	NA	NA	NA	NA	NA	NA	NA	NA	**3,210**
SB-3	14 – 15’	2/12/19	NA	NA	NA	NA	NA	NA	NA	NA	**9,550**
SB-3	19 – 20’	2/12/19	NA	NA	NA	NA	NA	NA	NA	NA	**15,000**
SB-3	24 – 25’	2/12/19	NA	NA	NA	NA	NA	NA	NA	NA	**8,180**
SB-3	29 – 30’	2/12/19	NA	NA	NA	NA	NA	NA	NA	NA	**5,260**
SB-3	34 – 35’	2/12/19	NA	NA	NA	NA	NA	NA	NA	NA	**6,270**
SB-3	39 – 40’	2/12/19	NA	NA	NA	NA	NA	NA	NA	NA	**5,360**
SB-3	44 – 45’	2/12/19	NA	NA	NA	NA	NA	NA	NA	NA	**3,480**
SB-3	49 – 50’	2/12/19	NA	NA	NA	NA	NA	NA	NA	NA	**4,150**
SB-3	54 – 55’	2/12/19	NA	NA	NA	NA	NA	NA	NA	NA	**3,880**
SB-3	59 – 60’	2/12/19	NA	NA	NA	NA	NA	NA	NA	NA	**3,250**
SB-3	64 – 65’	2/12/19	NA	NA	NA	NA	NA	NA	NA	NA	**1,180**

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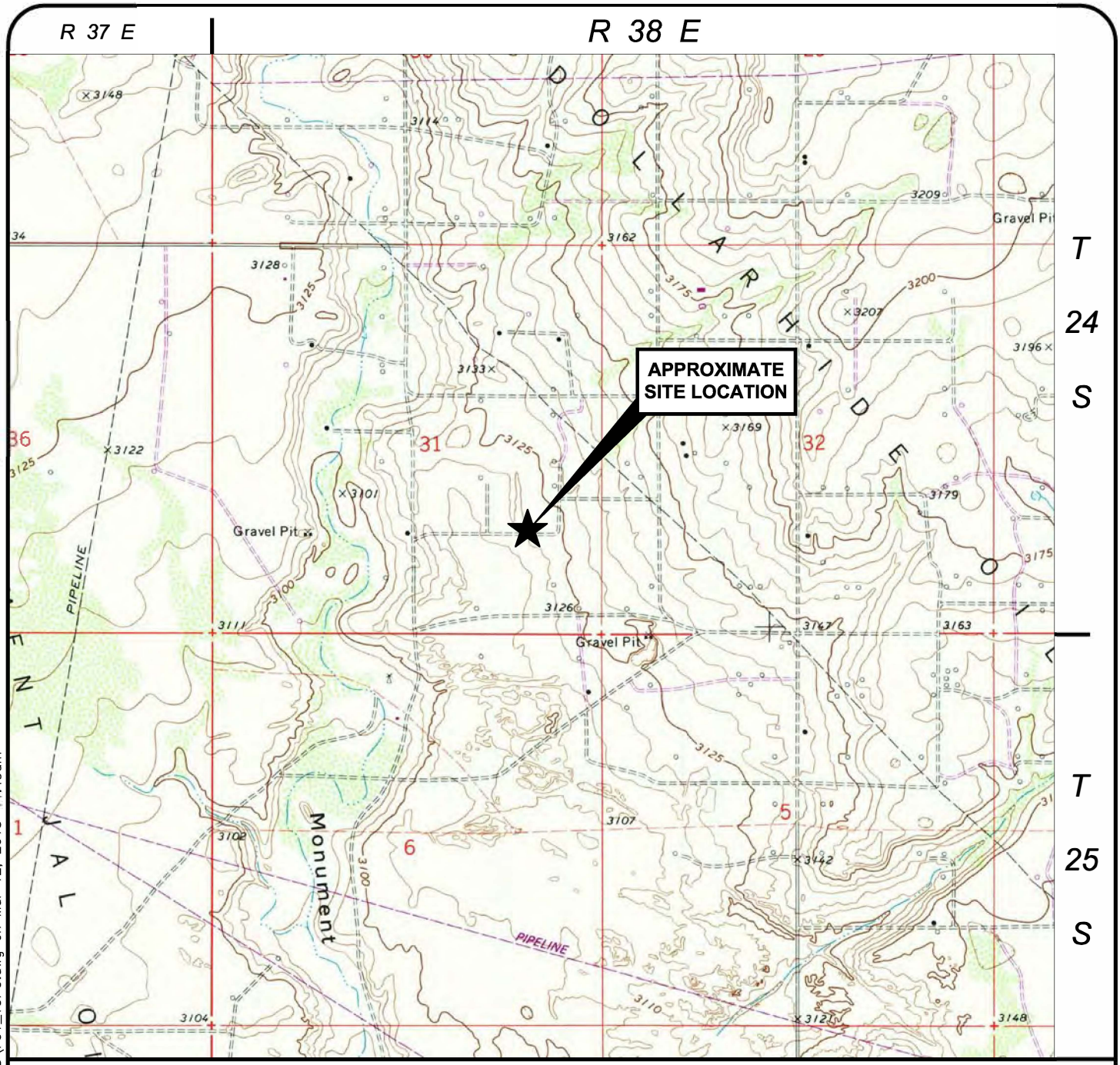
Figures



SOURCE: U.S.G.S. 7.5 MINUTE TOPOGRAPHIC QUADRANGLE
JAL NE, TEXAS-NEW MEXICO 1969, PHOTOREVISED 1979

SCALE
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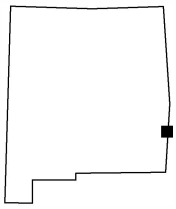
NEW MEXICO



N

CLIENT RAM ENERGY RESOURCES TULSA, OKLAHOMA	FIGURE TITLE ***SITE LOCATION LOCATION MAP***
LOCATION WEST DOLLARHIDE QUEEN SAND UNIT #99 FLOWLINE RELEASE SEC. 31, T24S R38E, LEA COUNTY, NEW MEXICO	DOCUMENT TITLE SOIL REMEDIATION WORK PLAN

ENVIRO CLEAN CARDINAL

Enviro Clean Cardinal, LLC
2405 East County Road 123
Midland, Texas 79706
432.301.0209
www.ECGRP.com

		DESIGNED BY	GHR\JK
DATE	3/12/2018	APPROVED BY	GHR\JK
SCALE	AS SHOWN	DRAWN BY	SKG
PROJECT NUMBER		FIGURE NUMBER	
RAMRNM0001		1	

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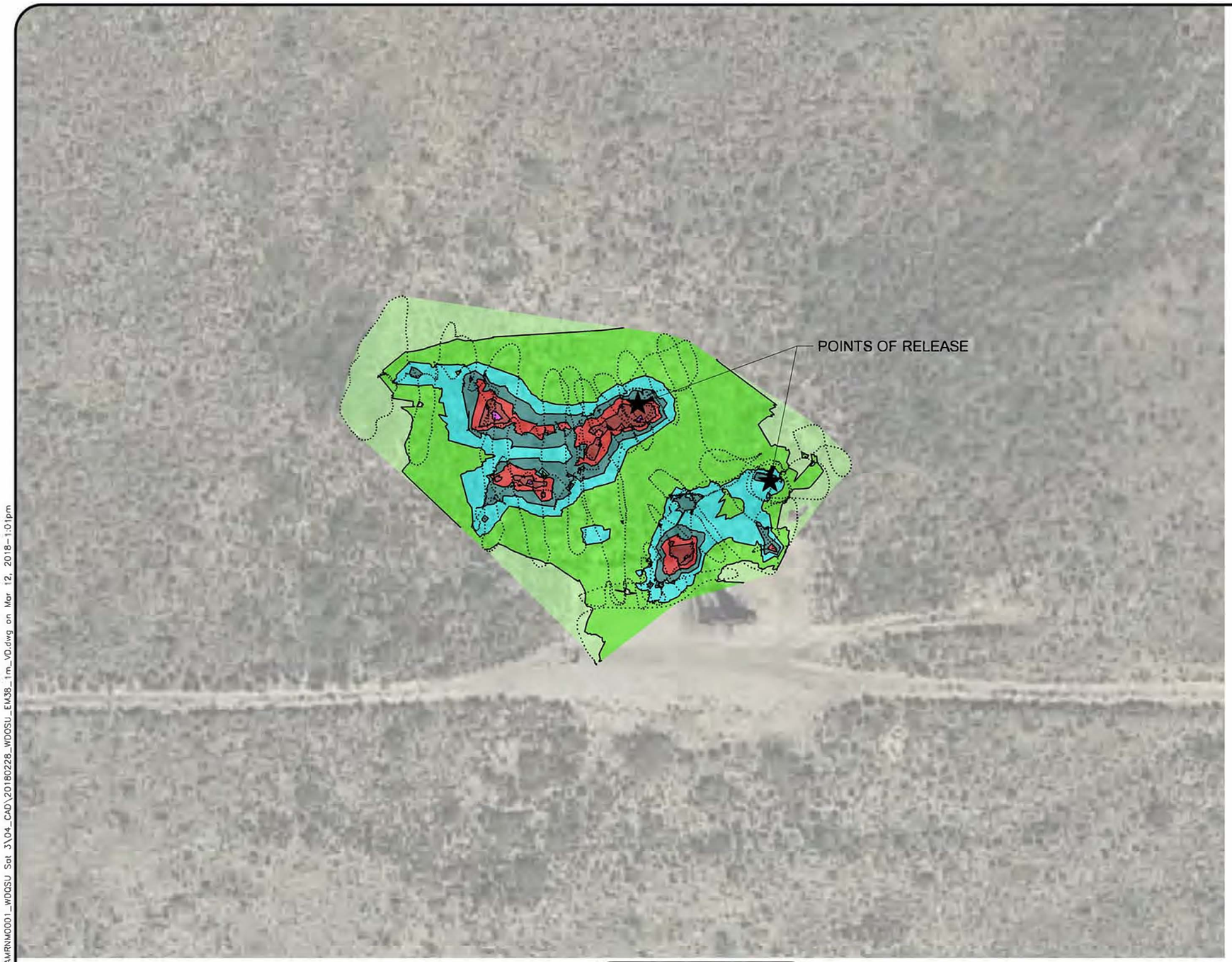

LEGEND

★ LOCATION OF RELEASE POINTS

× LOCATION OF EM38-MK2 GROUND CONDUCTIVITY MEASUREMENT IN mmhos/m

APPARENT GROUND CONDUCTIVITIES

Minimum mmhos/m	Maximum mmhos/m	Color
0	50	
50	100	
100	150	
150	200	
200	250	
250	300	
300	350+	

N

25 0 25 50

SCALE FEET

NOTES:

1) EM SURVEY PERFORMED BY ENVIRO CLEAN CARDINAL, LLC ON FEBRUARY 28, 2018.
2) EM SURVEY CONDUCTED BY GEORGE H. (BUDDY) RICHARDSON, P.G. USING GEONICS EM38-MK2 GROUND CONDUCTIVITY METER.
3) AERIAL PHOTOGRAPH DATED NOVEMBER 22, 2016. GEOREFERENCED FROM GOOGLE EARTH IMAGE SERVICES.

ENVIRO CLEAN CARDINAL

Enviro Clean Cardinal, LLC

2405 East County Road 123
Midland, Texas 79706
432.301.0209

www.EnviroCleanPS.com

DOCUMENT TITLE: SOIL REMEDIATION WORK PLAN

FIGURE TITLE: *EM SURVEY RESULTS: EM38 1.0-METER VERTICAL DIPOLE SURVEY RESULTS*

CLIENT: RAM ENERGY RESOURCES
TULSA, OKLAHOMA

LOCATION: WEST DOLLARHIDE QUEEN SAND UNIT #99 FLOWLINE RELEASE
SECTION 31, T24S, R38E, LEA COUNTY, NEW MEXICO

DESIGNED BY	GHR\JK		
APPROVED BY	GHR\JK	SCALE	1" =50'
DRAWN BY	SKG	DATE	3/12/2018

PROJECT NUMBER	FIGURE NUMBER
RAMRNM0001	2

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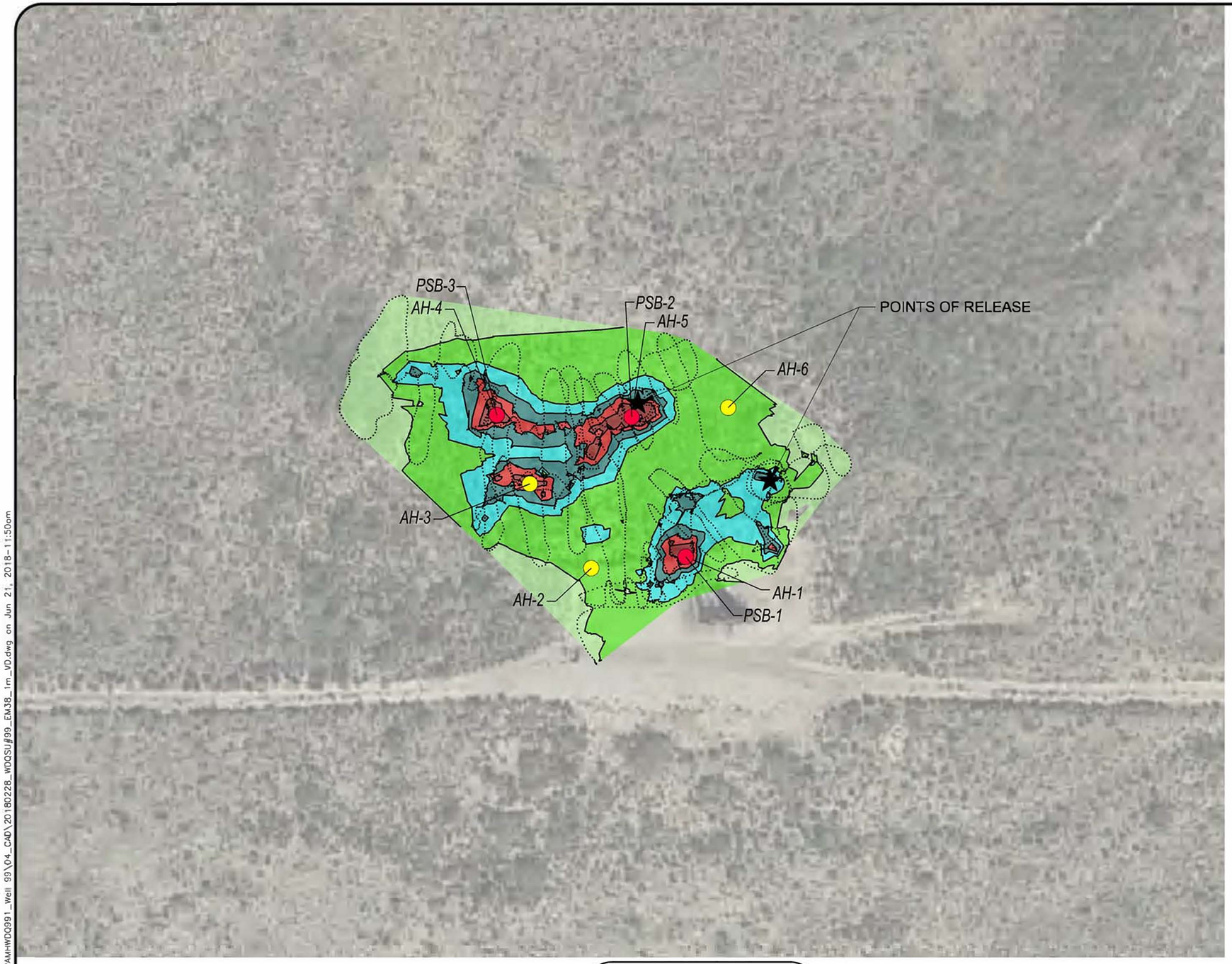

LEGEND

★ LOCATION OF RELEASE POINTS

× LOCATION OF EM38-MK2 GROUND CONDUCTIVITY MEASUREMENT IN mmhos/m

AH-1 LOCATION OF HAND AUGERED SOIL SAMPLES

PSB-1 DEEP SOIL BORING

APPARENT GROUND CONDUCTIVITIES

Minimum mmhos/m	Maximum mmhos/m	Color
0	50	
50	100	
100	150	
150	200	
200	250	
250	300	
300	350+	

N

25 0 25 50
SCALE FEET

NOTES:

1) EM SURVEY PERFORMED BY ENVIRO CLEAN CARDINAL, LLC ON FEBRUARY 28, 2018.
2) EM SURVEY CONDUCTED BY GEORGE H. (BUDDY) RICHARDSON, P.G. USING GEONICS EM38-MK2 GROUND CONDUCTIVITY METER.
3) AERIAL PHOTOGRAPH DATED NOVEMBER 22, 2016. GEOREFERENCED FROM GOOGLE EARTH IMAGE SERVICES.

ENVIRO CLEAN CARDINAL
Enviro Clean Cardinal, LLC
2405 East County Road 123
Midland, Texas 79706
432.301.0209
www.EnviroCleanPS.com

DOCUMENT TITLE: SOIL REMEDIATION WORK PLAN			FIGURE TITLE: *SOIL BORING LOCATION MAP*		
CLIENT: RAM ENERGY RESOURCES, TULSA, OKLAHOMA	DESIGNED BY	GHRJK		PROJECT NUMBER	FIGURE NUMBER
LOCATION: WEST DOLLARHIDE QUEEN SAND UNIT #99 FLOWLINE RELEASE, SECTION 31, T24S, R38E, LEA COUNTY, NEW MEXICO	APPROVED BY	GHRJK	SCALE 1"= 50'	RAMHWDQ991	3
	DRAWN BY	SKG	DATE 6/21/2018		

D:\Projects\RamEnergy\RAMHWDQ991_Well 99\04_CAD\20180228_WDQSU#99_EM38_1m_VD.dwg on Jun 21, 2018-11:50am

Figure 4: Soil Boring Logs, RAM Energy, 99 Flowline, February 12, 2019

Depth (feet bgs)

0
20
40
60
80
100

SB-1

Fine to medium sand, tan, with scattered layers of caliche, to bottom of the boring (35 feet bgs).

Chloride concentration estimates, in ppm, based on soil paste conductivities, are as follows:

- 4 to 5': 6,760 ppm
- 9 to 10': 4,450 ppm
- 14 to 15': no measurement
- 19 to 20': 3,078 ppm
- 24 to 25': 285 ppm
- 29 to 30': 318 ppm
- 34 to 35': 203 ppm

SB-2

Fine to medium sand, tan, with scattered layers of caliche, to 64'. Reddish brown sand and shale chips from 64' to bottom of the boring (95 feet bgs).

Chloride concentration estimates, in ppm, based on soil paste conductivities, are as follows :

- 4 to 5': 4,209 ppm
- 9 to 10': 5,315 ppm
- 14 to 15': 9,301 ppm
- 19 to 20': 5,972 ppm
- 24 to 25': 4,970 ppm
- 29 to 30': 5,312 ppm
- 34 to 35': 6,980 ppm
- 39 to 40': 3,268 ppm
- 44 to 45': 4,890 ppm
- 49 to 50': 6,510 ppm
- 54 to 55': 5,570 ppm
- 59 to 60': 5,690 ppm
- 64 to 65': 2,006 ppm
- 69 to 70': 1,210 ppm
- 74 to 75': 1,100 ppm
- 79 to 80': 1,208 ppm

SB-3

Fine to medium sand, tan, with scattered layers of caliche, to 60'. Reddish brown sand and shale chips from 60' to bottom of the boring (65 feet bgs).

Chloride concentration estimates, in ppm, based on soil paste conductivities, are as follows :

- 4 to 5': 6,802 ppm
- 9 to 10': 3,139 ppm
- 14 to 15': 6,908 ppm
- 19 to 20': 15,948 ppm
- 24 to 25': 6,146 ppm
- 29 to 30': 4,910 ppm
- 34 to 35': 6,105 ppm
- 39 to 40': 5,050 ppm
- 44 to 45': 2,678 ppm
- 49 to 50': 4,274 ppm
- 54 to 55': 2,995 ppm
- 59 to 60': 4,120 ppm
- 64 to 65': 1,816 ppm

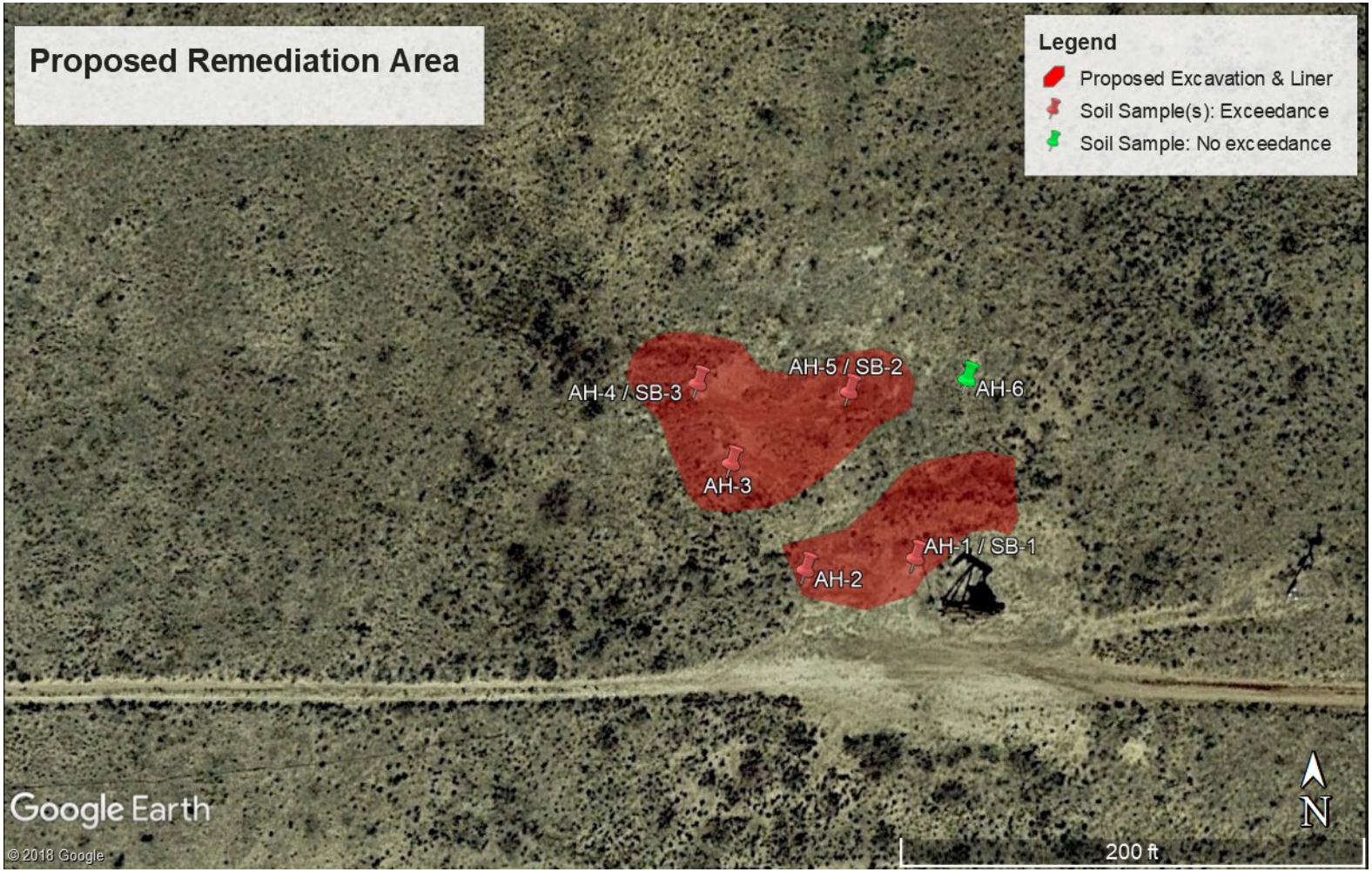

Image Source: Google Earth Pro (Image date: 2/20/2019)

Proposed Remediation Area, RAM Energy, #99 Flowline Release		
Drawn By: DL	ALTAMIRA	Date: 9/3/2018
Project Manager: DL		Figure No.: **5**

ALTAMIRA
formerly known as Enviro Clean Cardinal

Appendix C – Laboratory Analytical Results

Analytical Report 614452

for

Enviro Clean Services

Project Manager: David Lehmann

RAM Energy Well 99

RAM HWD Q 991

20-FEB-19

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-18-28), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-18-17), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-18)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429), North Carolina (483)
Xenco-Lakeland: Florida (E84098)

20-FEB-19

Project Manager: **David Lehmann**
Enviro Clean Services
6238 Forest Bend
San Antonio, TX 78240

Reference: XENCO Report No(s): **614452**
RAM Energy Well 99
Project Address:

David Lehmann:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 614452. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 614452 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Jessica Kramer

Jessica Kramer
Project Assistant

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.
Certified and approved by numerous States and Agencies.
A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - Midland - San Antonio - Phoenix - Oklahoma - Latin America

Sample Cross Reference 614452

Enviro Clean Services, San Antonio, TX

RAM Energy Well 99

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
99-SB-1	S	02-12-19 13:40	4 - 5 ft	614452-001
99-SB-1	S	02-12-19 13:42	9 - 10 ft	614452-002
99-SB-1	S	02-12-19 13:45	14 - 15 ft	614452-003
99-SB-1	S	02-12-19 13:50	19 - 20 ft	614452-004
99-SB-1	S	02-12-19 13:55	24 - 25 ft	614452-005
99-SB-1	S	02-12-19 14:00	29 - 30 ft	614452-006
99-SB-1	S	02-12-19 14:05	34 - 35 ft	614452-007
99-SB-2	S	02-12-19 14:15	4 - 5 ft	614452-008
99-SB-2	S	02-12-19 14:20	9 - 10 ft	614452-009
99-SB-2	S	02-12-19 14:25	14 - 15 ft	614452-010
99-SB-2	S	02-12-19 14:30	19 - 20 ft	614452-011
99-SB-2	S	02-12-19 14:35	24 - 25 ft	614452-012
99-SB-2	S	02-12-19 14:40	29 - 30 ft	614452-013
99-SB-2	S	02-12-19 14:44	34 - 35 ft	614452-014
99-SB-2	S	02-12-19 14:48	39 - 40 ft	614452-015
99-SB-2	S	02-12-19 14:53	44 - 45 ft	614452-016
99-SB-2	S	02-12-19 15:00	49 - 50 ft	614452-017
99-SB-2	S	02-12-19 15:03	54 - 55 ft	614452-018
99-SB-2	S	02-12-19 15:06	59 - 60 ft	614452-019
99-SB-2	S	02-12-19 15:09	64 - 65 ft	614452-020
99-SB-2	S	02-12-19 15:12	69 - 70 ft	614452-021
99-SB-3	S	02-12-19 15:50	4 - 5 ft	614452-027
99-SB-3	S	02-12-19 15:53	9 - 10 ft	614452-028
99-SB-3	S	02-12-19 15:56	14 - 15 ft	614452-029
99-SB-3	S	02-12-19 16:00	19 - 20 ft	614452-030
99-SB-3	S	02-12-19 16:03	24 - 25 ft	614452-031
99-SB-3	S	02-12-19 16:07	29 - 30 ft	614452-032
99-SB-3	S	02-12-19 16:10	34 - 35 ft	614452-033
99-SB-3	S	02-12-19 16:14	39 - 40 ft	614452-034
99-SB-3	S	02-12-19 16:18	44 - 45 ft	614452-035
99-SB-3	S	02-12-19 16:22	49 - 50 ft	614452-036
99-SB-3	S	02-12-19 16:27	54 - 55 ft	614452-037
99-SB-3	S	02-12-19 16:32	59 - 60 ft	614452-038
99-SB-3	S	02-12-19 16:36	64 - 65 ft	614452-039
99-SB-2	S	02-12-19 15:16	74 - 75 ft	Not Analyzed
99-SB-2	S	02-12-19 15:20	79 - 80 ft	Not Analyzed
99-SB-2	S	02-12-19 15:23	84 - 85 ft	Not Analyzed
99-SB-2	S	02-12-19 15:27	89 - 90 ft	Not Analyzed
99-SB-2	S	02-12-19 15:30	94 - 95 ft	Not Analyzed

Version: 1.%

CASE NARRATIVE

Client Name: Enviro Clean Services
Project Name: RAM Energy Well 99

Project ID: *RAM HWD Q 991*
Work Order Number(s): *614452*

Report Date: *20-FEB-19*
Date Received: *02/13/2019*

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3079275 Inorganic Anions by EPA 300
Lab Sample ID 614452-028 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered above QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 614452-014, -015, -016, -017, -018, -019, -021, -027, -028, -029, -030, -031, -032, -033, -034, -035, -036, -037, -038, -039.
The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.

Batch: LBA-3079279 Inorganic Anions by EPA 300
Lab Sample ID 614452-006 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered below QC limits in the Matrix Spike. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 614452-001, -002, -003, -004, -005, -006, -007, -008, -009, -010, -011, -012, -013, -020.
The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.

Batch: LBA-3079635 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3079643 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Certificate of Analysis Summary 614452

Enviro Clean Services, San Antonio, TX

Project Name: RAM Energy Well 99

Project Id: RAM HWD Q 991
Contact: David Lehmann
Project Location:

Date Received in Lab: Wed Feb-13-19 12:00 pm
Report Date: 20-FEB-19
Project Manager: Jessica Kramer

Analysis Requested													
	Lab Id:	614452-001		614452-002		614452-003		614452-004		614452-005		614452-006	
	Field Id:	99-SB-1		99-SB-1		99-SB-1		99-SB-1		99-SB-1		99-SB-1	
	Depth:	4-5 ft		9-10 ft		14-15 ft		19-20 ft		24-25 ft		29-30 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Feb-12-19 13:40		Feb-12-19 13:42		Feb-12-19 13:45		Feb-12-19 13:50		Feb-12-19 13:55		Feb-12-19 14:00	
BTEX by EPA 8021B	***Extracted:***	Feb-18-19 14:00											
	Analyzed:	Feb-19-19 08:17											
	Units/RL:	mg/kg	RL										
Benzene		ND	0.00202										
Toluene		ND	0.00202										
Ethylbenzene		ND	0.00202										
m,p-Xylenes		ND	0.00403										
o-Xylene		ND	0.00202										
Total Xylenes		ND	0.00202										
Total BTEX		ND	0.00202										
Inorganic Anions by EPA 300	***Extracted:***	Feb-14-19 15:00		Feb-14-19 15:00		Feb-14-19 15:00		Feb-14-19 15:00		Feb-14-19 15:00		Feb-14-19 15:00	
	Analyzed:	Feb-14-19 21:45		Feb-14-19 21:51		Feb-14-19 21:57		Feb-14-19 22:09		Feb-14-19 22:03		Feb-15-19 12:15	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		6420	50.0	5000	49.6	3050	24.8	350	4.99	676	4.96	113	4.97
TPH by SW8015 Mod	***Extracted:***	Feb-14-19 17:00											
	Analyzed:	Feb-14-19 23:08											
	Units/RL:	mg/kg	RL										
Gasoline Range Hydrocarbons (GRO)		ND	15.0										
Diesel Range Organics (DRO)		ND	15.0										
Motor Oil Range Hydrocarbons (MRO)		ND	15.0										
Total TPH		ND	15.0										

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Version: 1.%

Jessica Kramer
Project Assistant

Final 1.000

Certificate of Analysis Summary 614452

Enviro Clean Services, San Antonio, TX

Project Name: RAM Energy Well 99

Project Id: RAM HWD Q 991
Contact: David Lehmann
Project Location:

Date Received in Lab: Wed Feb-13-19 12:00 pm
Report Date: 20-FEB-19
Project Manager: Jessica Kramer

Analysis Requested													
	Lab Id:	614452-007		614452-008		614452-009		614452-010		614452-011		614452-012	
	Field Id:	99-SB-1		99-SB-2		99-SB-2		99-SB-2		99-SB-2		99-SB-2	
	Depth:	34-35 ft		4-5 ft		9-10 ft		14-15 ft		19-20 ft		24-25 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Feb-12-19 14:05		Feb-12-19 14:15		Feb-12-19 14:20		Feb-12-19 14:25		Feb-12-19 14:30		Feb-12-19 14:35	
BTEX by EPA 8021B	***Extracted:***			Feb-18-19 14:00									
	Analyzed:			Feb-19-19 08:36									
	Units/RL:			mg/kg	RL								
Benzene				ND	0.00200								
Toluene				ND	0.00200								
Ethylbenzene				ND	0.00200								
m,p-Xylenes				ND	0.00400								
o-Xylene				ND	0.00200								
Total Xylenes				ND	0.00200								
Total BTEX				ND	0.00200								
Inorganic Anions by EPA 300	***Extracted:***	Feb-14-19 15:00		Feb-14-19 15:00		Feb-14-19 15:00		Feb-14-19 15:00		Feb-14-19 15:00		Feb-14-19 15:00	
	Analyzed:	Feb-14-19 22:34		Feb-14-19 22:56		Feb-14-19 23:02		Feb-14-19 23:14		Feb-14-19 23:20		Feb-14-19 23:26	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		1230	4.97	4170	50.0	6340	50.0	7480	50.0	7400	50.0	3920	24.8
TPH by SW8015 Mod	***Extracted:***			Feb-14-19 17:00									
	Analyzed:			Feb-15-19 00:07									
	Units/RL:			mg/kg	RL								
Gasoline Range Hydrocarbons (GRO)				ND	14.9								
Diesel Range Organics (DRO)				26.5	14.9								
Motor Oil Range Hydrocarbons (MRO)				ND	14.9								
Total TPH				26.5	14.9								

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Version: 1.%

Jessica Kramer
Project Assistant

Final 1.000

Certificate of Analysis Summary 614452

Enviro Clean Services, San Antonio, TX

Project Name: RAM Energy Well 99

Project Id: RAM HWD Q 991
Contact: David Lehmann
Project Location:

Date Received in Lab: Wed Feb-13-19 12:00 pm
Report Date: 20-FEB-19
Project Manager: Jessica Kramer

Analysis Requested	*Lab Id:*	614452-013		614452-014		614452-015		614452-016		614452-017		614452-018	
	Field Id:	99-SB-2		99-SB-2		99-SB-2		99-SB-2		99-SB-2		99-SB-2	
	Depth:	29-30 ft		34-35 ft		39-40 ft		44-45 ft		49-50 ft		54-55 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Feb-12-19 14:40		Feb-12-19 14:44		Feb-12-19 14:48		Feb-12-19 14:53		Feb-12-19 15:00		Feb-12-19 15:03	
Inorganic Anions by EPA 300	*Extracted:*	Feb-14-19 15:00		Feb-14-19 16:30		Feb-14-19 16:30		Feb-14-19 16:30		Feb-14-19 16:30		Feb-14-19 16:30	
	Analyzed:	Feb-14-19 23:33		Feb-15-19 15:33		Feb-14-19 23:25		Feb-14-19 23:35		Feb-14-19 23:44		Feb-14-19 23:54	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		5130	49.7	5370	99.0	4730	50.0	4180	25.0	5940	49.8	5330	49.8

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Version: 1.%

Jessica Kramer
Project Assistant

Certificate of Analysis Summary 614452

Enviro Clean Services, San Antonio, TX

Project Name: RAM Energy Well 99

Project Id: RAM HWD Q 991
Contact: David Lehmann
Project Location:

Date Received in Lab: Wed Feb-13-19 12:00 pm
Report Date: 20-FEB-19
Project Manager: Jessica Kramer

Analysis Requested													
	Lab Id:	614452-019		614452-020		614452-021		614452-027		614452-028		614452-029	
	Field Id:	99-SB-2		99-SB-2		99-SB-2		99-SB-3		99-SB-3		99-SB-3	
	Depth:	59-60 ft		64-65 ft		69-70 ft		4-5 ft		9-10 ft		14-15 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Feb-12-19 15:06		Feb-12-19 15:09		Feb-12-19 15:12		Feb-12-19 15:50		Feb-12-19 15:53		Feb-12-19 15:56	
BTEX by EPA 8021B	***Extracted:***							Feb-18-19 17:00					
	Analyzed:							Feb-19-19 15:49					
	Units/RL:							mg/kg	RL				
Benzene								ND	0.00201				
Toluene								ND	0.00201				
Ethylbenzene								ND	0.00201				
m,p-Xylenes								ND	0.00402				
o-Xylene								ND	0.00201				
Total Xylenes								ND	0.00201				
Total BTEX								ND	0.00201				
Inorganic Anions by EPA 300	***Extracted:***	Feb-14-19 16:30		Feb-14-19 15:00		Feb-14-19 16:30		Feb-14-19 16:30		Feb-14-19 16:30		Feb-14-19 16:30	
	Analyzed:	Feb-15-19 00:23		Feb-14-19 23:08		Feb-15-19 00:43		Feb-15-19 00:33		Feb-15-19 01:12		Feb-15-19 01:02	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		5980	49.8	913	5.00	638	5.00	6530	49.6	3210	24.9	9550	99.2
TPH by SW8015 Mod	***Extracted:***							Feb-14-19 17:00					
	Analyzed:							Feb-15-19 00:27					
	Units/RL:							mg/kg	RL				
Gasoline Range Hydrocarbons (GRO)								ND	15.0				
Diesel Range Organics (DRO)								ND	15.0				
Motor Oil Range Hydrocarbons (MRO)								ND	15.0				
Total TPH								ND	15.0				

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Version: 1.%

Jessica Kramer
Project Assistant

Final 1.000

Certificate of Analysis Summary 614452

Enviro Clean Services, San Antonio, TX

Project Name: RAM Energy Well 99

Project Id: RAM HWD Q 991
Contact: David Lehmann
Project Location:

Date Received in Lab: Wed Feb-13-19 12:00 pm
Report Date: 20-FEB-19
Project Manager: Jessica Kramer

Analysis Requested	*Lab Id:*	614452-030		614452-031		614452-032		614452-033		614452-034		614452-035	
	Field Id:	99-SB-3		99-SB-3		99-SB-3		99-SB-3		99-SB-3		99-SB-3	
	Depth:	19-20 ft		24-25 ft		29-30 ft		34-35 ft		39-40 ft		44-45 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Feb-12-19 16:00		Feb-12-19 16:03		Feb-12-19 16:07		Feb-12-19 16:10		Feb-12-19 16:14		Feb-12-19 16:18	
Inorganic Anions by EPA 300	*Extracted:*	Feb-14-19 16:30		Feb-14-19 16:30		Feb-14-19 16:30		Feb-14-19 16:30		Feb-14-19 16:30		Feb-14-19 16:30	
	Analyzed:	Feb-15-19 00:52		Feb-15-19 01:40		Feb-15-19 01:50		Feb-15-19 02:19		Feb-15-19 02:29		Feb-15-19 02:38	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		15000	250	8180	49.7	5260	49.5	6270	50.0	5360	50.0	3480	25.0

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Version: 1.%

Jessica Kramer
Project Assistant

Certificate of Analysis Summary 614452

Enviro Clean Services, San Antonio, TX

Project Name: RAM Energy Well 99

Project Id: RAM HWD Q 991
Contact: David Lehmann
Project Location:

Date Received in Lab: Wed Feb-13-19 12:00 pm
Report Date: 20-FEB-19
Project Manager: Jessica Kramer

Analysis Requested	*Lab Id:*	614452-036		614452-037		614452-038		614452-039			
	Field Id:	99-SB-3		99-SB-3		99-SB-3		99-SB-3			
	Depth:	49-50 ft		54-55 ft		59-60 ft		64-65 ft			
	Matrix:	SOIL		SOIL		SOIL		SOIL			
	Sampled:	Feb-12-19 16:22		Feb-12-19 16:27		Feb-12-19 16:32		Feb-12-19 16:36			
Inorganic Anions by EPA 300	*Extracted:*	Feb-14-19 16:30		Feb-14-19 16:30		Feb-14-19 16:30		Feb-14-19 16:30			
	Analyzed:	Feb-15-19 02:48		Feb-15-19 02:58		Feb-15-19 03:07		Feb-15-19 03:17			
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL		
Chloride		4150	24.8	3880	25.0	3220	25.0	1180	25.0		

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Version: 1.%

Jessica Kramer
Project Assistant

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

***** (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

Form 2 - Surrogate Recoveries

Project Name: RAM Energy Well 99

Work Orders : 614452,

Project ID: RAM HWD Q 991

Lab Batch #: 3079290 **Sample:** 614452-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/14/19 23:08

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	93.3	99.7	94	70-135	
o-Terphenyl	46.2	49.9	93	70-135	

Lab Batch #: 3079290 **Sample:** 614452-008 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/15/19 00:07

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	92.7	99.6	93	70-135	
o-Terphenyl	45.5	49.8	91	70-135	

Lab Batch #: 3079290 **Sample:** 614452-027 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/15/19 00:27

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	93.0	99.8	93	70-135	
o-Terphenyl	45.8	49.9	92	70-135	

Lab Batch #: 3079635 **Sample:** 614452-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/19/19 08:17

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0339	0.0300	113	70-130	
4-Bromofluorobenzene	0.0307	0.0300	102	70-130	

Lab Batch #: 3079635 **Sample:** 614452-008 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/19/19 08:36

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0346	0.0300	115	70-130	
4-Bromofluorobenzene	0.0326	0.0300	109	70-130	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

Version: 1.%

Form 2 - Surrogate Recoveries

Project Name: RAM Energy Well 99

Work Orders : 614452,

Project ID: RAM HWD Q 991

Lab Batch #: 3079643 **Sample:** 614452-027 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/19/19 15:49

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0280	0.0300	93	70-130	
4-Bromofluorobenzene	0.0312	0.0300	104	70-130	

Lab Batch #: 3079290 **Sample:** 7671840-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 02/14/19 22:08

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	97.5	100	98	70-135	
o-Terphenyl	48.8	50.0	98	70-135	

Lab Batch #: 3079635 **Sample:** 7671985-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 02/19/19 07:58

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0320	0.0300	107	70-130	
4-Bromofluorobenzene	0.0274	0.0300	91	70-130	

Lab Batch #: 3079643 **Sample:** 7672058-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 02/19/19 10:01

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0272	0.0300	91	70-130	
4-Bromofluorobenzene	0.0288	0.0300	96	70-130	

Lab Batch #: 3079290 **Sample:** 7671840-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 02/14/19 22:27

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	123	100	123	70-135	
o-Terphenyl	54.6	50.0	109	70-135	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

Version: 1.%

Form 2 - Surrogate Recoveries

Project Name: RAM Energy Well 99

Work Orders : 614452,

Project ID: RAM HWD Q 991

Lab Batch #: 3079643 **Sample:** 7672058-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 02/19/19 03:21

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0330	0.0300	110	70-130	
4-Bromofluorobenzene	0.0234	0.0300	78	70-130	

Lab Batch #: 3079635 **Sample:** 7671985-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 02/19/19 06:25

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0323	0.0300	108	70-130	
4-Bromofluorobenzene	0.0284	0.0300	95	70-130	

Lab Batch #: 3079290 **Sample:** 7671840-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 02/14/19 22:48

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	124	100	124	70-135	
o-Terphenyl	54.2	50.0	108	70-135	

Lab Batch #: 3079635 **Sample:** 7671985-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 02/19/19 06:44

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0330	0.0300	110	70-130	
4-Bromofluorobenzene	0.0292	0.0300	97	70-130	

Lab Batch #: 3079643 **Sample:** 7672058-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 02/19/19 08:35

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0272	0.0300	91	70-130	
4-Bromofluorobenzene	0.0211	0.0300	70	70-130	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

Version: 1.%

Form 2 - Surrogate Recoveries

Project Name: RAM Energy Well 99

Work Orders : 614452,

Project ID: RAM HWD Q 991

Lab Batch #: 3079290 **Sample:** 614452-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/14/19 23:27

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	117	99.7	117	70-135	
o-Terphenyl	46.9	49.9	94	70-135	

Lab Batch #: 3079635 **Sample:** 614584-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/19/19 07:03

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0313	0.0300	104	70-130	
4-Bromofluorobenzene	0.0359	0.0300	120	70-130	

Lab Batch #: 3079643 **Sample:** 614885-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/19/19 08:58

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0359	0.0300	120	70-130	
4-Bromofluorobenzene	0.0226	0.0300	75	70-130	

Lab Batch #: 3079290 **Sample:** 614452-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/14/19 23:47

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	110	99.9	110	70-135	
o-Terphenyl	45.5	50.0	91	70-135	

Lab Batch #: 3079635 **Sample:** 614584-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/19/19 07:22

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0323	0.0300	108	70-130	
4-Bromofluorobenzene	0.0290	0.0300	97	70-130	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

Version: 1.%

Form 2 - Surrogate Recoveries

Project Name: RAM Energy Well 99

Work Orders : 614452,

Project ID: RAM HWD Q 991

Lab Batch #: 3079643 **Sample:** 614885-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/19/19 09:20

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0331	0.0300	110	70-130	
4-Bromofluorobenzene	0.0240	0.0300	80	70-130	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

Version: 1.%

BS / BSD Recoveries

Project Name: RAM Energy Well 99

Work Order #: 614452 **Project ID:** RAM HWD Q 991

Analyst: SCM **Date Prepared:** 02/18/2019 **Date Analyzed:** 02/19/2019

Lab Batch ID: 3079635 **Sample:** 7671985-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.000383	0.0996	0.119	119	0.0998	0.120	120	1	70-130	35	
Toluene	<0.000454	0.0996	0.102	102	0.0998	0.103	103	1	70-130	35	
Ethylbenzene	<0.000563	0.0996	0.0966	97	0.0998	0.0971	97	1	70-130	35	
m,p-Xylenes	<0.00101	0.199	0.193	97	0.200	0.193	97	0	70-130	35	
o-Xylene	<0.000343	0.0996	0.0964	97	0.0998	0.0968	97	0	70-130	35	

Analyst: SCM **Date Prepared:** 02/18/2019 **Date Analyzed:** 02/19/2019

Lab Batch ID: 3079643 **Sample:** 7672058-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00200	0.100	0.121	121	0.0996	0.119	119	2	70-130	35	
Toluene	<0.00200	0.100	0.0980	98	0.0996	0.0945	95	4	70-130	35	
Ethylbenzene	<0.00200	0.100	0.113	113	0.0996	0.110	110	3	70-130	35	
m,p-Xylenes	<0.00401	0.200	0.233	117	0.199	0.227	114	3	70-130	35	
o-Xylene	<0.00200	0.100	0.109	109	0.0996	0.106	106	3	70-130	35	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

Version: 1.%

BS / BSD Recoveries

Project Name: RAM Energy Well 99

Work Order #: 614452 **Project ID:** RAM HWD Q 991

Analyst: CHE **Date Prepared:** 02/14/2019 **Date Analyzed:** 02/14/2019

Lab Batch ID: 3079279 **Sample:** 7671807-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<0.858	250	264	106	250	252	101	5	90-110	20	

Analyst: CHE **Date Prepared:** 02/14/2019 **Date Analyzed:** 02/14/2019

Lab Batch ID: 3079275 **Sample:** 7671811-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<5.00	250	269	108	250	269	108	0	90-110	20	

Analyst: ARM **Date Prepared:** 02/14/2019 **Date Analyzed:** 02/14/2019

Lab Batch ID: 3079290 **Sample:** 7671840-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Gasoline Range Hydrocarbons (GRO)	<8.00	1000	910	91	1000	881	88	3	70-135	20	
Diesel Range Organics (DRO)	<8.13	1000	1000	100	1000	976	98	2	70-135	20	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

Version: 1.%

Form 3 - MS / MSD Recoveries

Project Name: RAM Energy Well 99

Work Order # : 614452 **Project ID:** RAM HWD Q 991

Lab Batch ID: 3079635 **QC- Sample ID:** 614584-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 02/19/2019 **Date Prepared:** 02/18/2019 **Analyst:** SCM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00200	0.100	0.0767	77	0.100	0.109	109	35	70-130	35	
Toluene	<0.000456	0.100	0.0803	80	0.100	0.0927	93	14	70-130	35	
Ethylbenzene	<0.000565	0.100	0.0779	78	0.100	0.0834	83	7	70-130	35	
m,p-Xylenes	<0.00101	0.200	0.165	83	0.201	0.166	83	1	70-130	35	
o-Xylene	<0.000344	0.100	0.0862	86	0.100	0.0860	86	0	70-130	35	

Lab Batch ID: 3079643 **QC- Sample ID:** 614885-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 02/19/2019 **Date Prepared:** 02/18/2019 **Analyst:** SCM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00201	0.101	0.111	110	0.0998	0.0987	99	12	70-130	35	
Toluene	<0.00201	0.101	0.0884	88	0.0998	0.0885	89	0	70-130	35	
Ethylbenzene	<0.00201	0.101	0.0950	94	0.0998	0.0841	84	12	70-130	35	
m,p-Xylenes	<0.00402	0.201	0.188	94	0.200	0.166	83	12	70-130	35	
o-Xylene	<0.00201	0.101	0.0887	88	0.0998	0.0784	79	12	70-130	35	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Form 3 - MS / MSD Recoveries

Project Name: RAM Energy Well 99

Work Order # : 614452 **Project ID:** RAM HWD Q 991

Lab Batch ID: 3079275 **QC- Sample ID:** 614452-014 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 02/15/2019 **Date Prepared:** 02/14/2019 **Analyst:** CHE

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	5370	248	10300	NC	248	10300	NC	0	90-110	20	X

Lab Batch ID: 3079275 **QC- Sample ID:** 614452-028 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 02/15/2019 **Date Prepared:** 02/14/2019 **Analyst:** CHE

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	3210	249	4550	NC	249	4470	NC	2	90-110	20	X

Lab Batch ID: 3079279 **QC- Sample ID:** 614452-004 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 02/14/2019 **Date Prepared:** 02/14/2019 **Analyst:** CHE

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	350	250	561	84	250	585	94	4	90-110	20	X

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Form 3 - MS / MSD Recoveries

Project Name: RAM Energy Well 99

Work Order # : 614452 **Project ID:** RAM HWD Q 991

Lab Batch ID: 3079279 **QC- Sample ID:** 614452-006 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 02/15/2019 **Date Prepared:** 02/14/2019 **Analyst:** CHE

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	113	249	357	98	249	355	97	1	90-110	20	

Lab Batch ID: 3079290 **QC- Sample ID:** 614452-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 02/14/2019 **Date Prepared:** 02/14/2019 **Analyst:** ARM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Gasoline Range Hydrocarbons (GRO)	<7.98	997	887	89	999	894	89	1	70-135	20	
Diesel Range Organics (DRO)	11.8	997	907	90	999	906	90	0	70-135	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Chain of Custody

XENCO LABORATORIES

Houston,TX (281) 240-4200 Dallas,TX (214) 902-0300 San Antonio,TX (210) 509-3334
Midland,TX (432-704-5440) EL Paso,TX (915)585-3443 Lubbock,TX (806)794-1296
Hobbs,NM (575-392-7550) Phoenix,AZ (480-355-0900) Atlanta,GA (770-449-8800) Tampa,FL (813-620-2000)

www.xenco.com

Work Order No: 614452

Page 1 of 5

Project Manager:	David Lehmann	Bill to: (if different)	
Company Name:	EnviroClean	Company Name:	
Address:	2405 ECR 123	Address:	
City, State ZIP:	Midland, TX. 79706	City, State ZIP:	
Phone:	713-208-6481	Email:	David.Lehmann@eccgrp.com

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project:
Reporting: Level II ☐ Level III ☐ PST/UST ☐ RRP ☐ Level IV ☐
Deliverables: EDD ☑ ADaPT ☐ Other:

Project Name:	RAM Energy Well 99	Turn Around	
Project Number:	RAM HWD 1Q 991	Routine	☑
P.O. Number:		Rush:	
Sampler's Name:	Lehmann / Richardson	Due Date:	

SAMPLE RECEIPT			
Temp Blank:	Yes (No)	Wet Ice:	(Yes) No
Temperature (°C):	5.5 / 5.4	Thermometer ID	
Received Intact:	(Yes) No		
Cooler Custody Seals:	Yes No N/A	Correction Factor:	-0.1
Sample Custody Seals:	Yes No N/A	Total Containers:	

ANALYSIS REQUEST

Work Order Notes

TAT starts the day recevied by the lab, if received by 4:30pm

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	BTEX	Chlorides	TPH (SW8015)	Sample Comments
~~99-SB-1~~ 99-SB-1	S	2/12/19	1:40 pm	4-5'		X	X	X	Chlorides - all samples
99-SB-1			1:42	9-10'		H	X	H	Hold for BTEX, TPH
			1:45	14-15'			X		
			1:50	19-20'			X		
			1:55	24-25'			X		
			2:00 pm	29-30'			X		
			2:05 PM	34-35'			X		

Total 200.7 / 6010 **200.8 / 6020:** 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Tl Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed **TCLP / SPLP 6010**: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U **1631 / 245.1 / 7470 / 7471** : Hg

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 David Lehmann	[signature]	2/13 Noon	2		
3			4		
5			6		

Revised Date 051418 Rev. 2018.1

XENCO LABORATORIES

Chain of Custody

Houston,TX (281) 240-4200 Dallas,TX (214) 902-0300 San Antonio,TX (210) 509-3334
Midland,TX (432-704-5440) EL Paso,TX (915)585-3443 Lubbock,TX (806)794-1296
Hobbs,NM (575-392-7550) Phoenix,AZ (480-355-0900) Atlanta,GA (770-449-8800) Tampa,FL (813-620-2000)

Work Order No: 614452

www.xenco.com Page 2 of 5

Project Manager:	David Lehmann	Bill to: (if different)	
Company Name:	EnviroClean	Company Name:	
Address:	2405 ECR 123	Address:	
City, State ZIP:	Midland, TX. 79706	City, State ZIP:	
Phone:	713-208-6481	Email:	David.Lehmann@eccgrp.com

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project:
Reporting: Level II ☐ Level III ☐ PST/UST ☐ RRP ☐ Level IV ☐
Deliverables: EDD ☑ ADaPT ☐ Other:

Project Name:	RAM Energy Well 99	Turn Around	
Project Number:	RAM HWD 1Q 991	Routine	☑
P.O. Number:		Rush:	
Sampler's Name:	Lehmann / Richardson	Due Date:	

SAMPLE RECEIPT			
Temp Blank:	Yes (No)	Wet Ice:	(Yes) No
Temperature (°C):	5.5/5.9	Thermometer ID	18
Received Intact:	(Yes) No		
Cooler Custody Seals:	Yes No N/A	Correction Factor:	-0.1
Sample Custody Seals:	Yes No N/A	Total Containers:	

ANALYSIS REQUEST

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	BTEX	Chlorides	TPH (SW8015)	Sample Comments
99-SB2	S	2/12/19	14:15	4-5'	1	X	X	X	
			14:20	9-10'		H	X	H	Hold for BTEX, TPH
			14:25	14-15'				H	
			14:30	19-20'					
			14:35	24-25'					
			14:40	29-30'					
			14:44	34-35'					
			14:48	39-40'					
			14:53	44-45'					
			15:00	49-50'					

Work Order Notes

TAT starts the day recevied by the lab, if received by 4:30pm

Total 200.7 / 6010 **200.8 / 6020:** 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Tl Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed **TCLP / SPLP 6010**: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U **1631 / 245.1 / 7470 / 7471** : Hg

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1	Bell	2/13 1200	2		
3			4		
5			6		

Revised Date 051418 Rev. 2018.1

Chain of Custody

XENCO LABORATORIES

Houston,TX (281) 240-4200 Dallas,TX (214) 902-0300 San Antonio,TX (210) 509-3334
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Hobbs,NM (575-392-7550) Phoenix,AZ (480-355-0900) Atlanta,GA (770-449-8800) Tampa,FL (813-620-2000)

www.xenco.com

Work Order No: 614452

Page 3 of 5

Project Manager:	David Lehmann	Bill to: (if different)	
Company Name:	EnviroClean	Company Name:	
Address:	2405 ECR 123	Address:	
City, State ZIP:	Midland, TX. 79706	City, State ZIP:	
Phone:	713-208-6481	Email:	David.Lehmann@ECCGRP.com

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐

State of Project:

Reporting: Level II ☐ Level III ☐ PST/UST ☐ RRP ☐ Level IV ☐

Deliverables: EDD ☑ ADaPT ☐ Other:

Project Name:	RAM Energy Well 99	Turn Around	
Project Number:	RAM H10D2 991	Routine	☑
P.O. Number:		Rush:	
Sampler's Name:	Lehmann / Richardson	Due Date:	

SAMPLE RECEIPT			
Temp Blank:	Yes (No)	Wet Ice:	(Yes) No
Temperature (°C):	5.5/5.4	Thermometer ID	12
Received Intact:	(Yes) No		
Cooler Custody Seals:	Yes ~~No~~ N/A	Correction Factor:	-0.1
Sample Custody Seals:	Yes No N/A	Total Containers:	

ANALYSIS REQUEST

Work Order Notes

TAT starts the day recevied by the lab, if received by 4:30pm

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	BTEX	Chlorides	TPH (SW8015)	Sample Comments
99-SB2	S	2/12/19	15:03	54-55'	1	H	X	H	Hold for BTEX, TPH
			15:06	59-60'					
			15:09	64-65'					
			15:12	69-70'					
			15:16	74-75'					
			15:20	79-80'					
			15:23	84-85'					
			15:27	89-90'					
			15:30	94-95'					

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Tl Sn U V Zn

Circle Method(s) and Metal(s) to be analyzed **TCLP / SPLP 6010:** 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U **1631 / 245.1 / 7470 / 7471** : Hg

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 David Lehmann	[signature]	2-13 Noon	2		
3			4		
5			6		

Revised Date 051418 Rev. 2018.1

Chain of Custody

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Houston,TX (281) 240-4200 Dallas,TX (214) 902-0300 San Antonio,TX (210) 509-3334
Midland,TX (432-704-5440) EL Paso,TX (915)585-3443 Lubbock,TX (806)794-1296
Hobbs,NM (575-392-7550) Phoenix,AZ (480-355-0900) Atlanta,GA (770-449-8800) Tampa,FL (813-620-2000)

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Work Order No: 614452

Page 4 of 5

Project Manager:	David Lehmann	Bill to: (if different)	
Company Name:	EnviroClean	Company Name:	
Address:	2405 ECR 123	Address:	
City, State ZIP:	Midland, TX. 79706	City, State ZIP:	
Phone:	713-208-6481	Email:	David.Lehmann@eccgrp.com

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐

State of Project:

Reporting: Level II ☐ Level III ☐ PST/UST ☐ RRP ☐ Level IV ☐

Deliverables: EDD ☑ ADaPT ☐ Other:

Project Name:	RAM Energy Well 99	Turn Around	
Project Number:	RAM HWD 1Q 99	Routine	☑
P.O. Number:		Rush:	
Sampler's Name:	Lehmann / Richardson	Due Date:	

SAMPLE RECEIPT			
Temp Blank:	Yes (No)	Wet Ice:	(Yes) No
Temperature (°C):	5.5/5.4	Thermometer ID	
Received Intact:	(Yes) No		
Cooler Custody Seals:	Yes No N/A	Correction Factor:	-0.1
Sample Custody Seals:	Yes No N/A	Total Containers:	

ANALYSIS REQUEST

Work Order Notes

TAT starts the day recevied by the lab, if received by 4:30pm

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	BTEX	Chlorides	TPH (SW8015)	Sample Comments
99-SB3	S	2/12/19	3:50 pm	4-5'		X	X	X	
			3:53 pm	9-10'		H	X	H	Hold for BTEX, TPH
			3:56 pm	14-15'					
			4:00 pm	19-20'					
			4:03 PM	24-25'					
			4:07PM	29-30'					
			4:10PM	34-35'					
			4:14PM	39-40'					
			4:18PM	44-45'					
			4:22PM	49-50'					

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Tl Sn U V Zn

Circle Method(s) and Metal(s) to be analyzed **TCLP / SPLP 6010**: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U **1631 / 245.1 / 7470 / 7471** : Hg

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 D. Lehmann	Ball	2/13/19 Noon	2		
3			4		
5			6		

Revised Date 051418 Rev. 2018.1

Chain of Custody

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Midland,TX (432-704-5440) EL Paso,TX (915)585-3443 Lubbock,TX (806)794-1296
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Work Order No: 614452

Page 5 of 5

Project Manager:	David Lehmann	Bill to: (if different)	
Company Name:	EnviroClean	Company Name:	
Address:	2405 ECR 123	Address:	
City, State ZIP:	Midland, TX. 79706	City, State ZIP:	
Phone:	713-208-6481	Email:	David.Lehmann@ECCGRP.COM

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project:
Reporting: Level II ☐ Level III ☐ PST/UST ☐ RRP ☐ Level IV ☐
Deliverables: EDD ☑ ADaPT ☐ Other:

Project Name:	RAM Energy Well 99	Turn Around	
Project Number:	RAM HUDD 991	Routine	☑
P.O. Number:		Rush:	
Sampler's Name:	Lehmann / Richardson	Due Date:	

SAMPLE RECEIPT			
Temp Blank:	Yes (No)	Wet Ice:	(Yes) No
Temperature (°C):	5.5/54	Thermometer ID	VE
Received Intact:	(Yes) No		
Cooler Custody Seals:	Yes (No) N/A	Correction Factor:	-0.1
Sample Custody Seals:	Yes (No) N/A	Total Containers:	

ANALYSIS REQUEST

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	BTEX	Chlorides	TPH (SW8015)	Work Order Notes / Sample Comments
99-5B-3	S	2/12/19	4:27 PM	54-55'		H	X	H	Hold for BTEX, TPH
↓	↓	↓	4:32 PM	59-60'		H	X	H	↓
↓	↓	↓	4:36 PM	64-65'		H	X	H	↓

TAT starts the day recevied by the lab, if received by 4:30pm

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Tl Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed **TCLP / SPLP 6010**: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U **1631 / 245.1 / 7470 / 7471** : Hg

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 David Lehmann	[signature]	2-13 Noon	2		
3			4		
5			6		

Revised Date 051418 Rev. 2018.1

CUSTODY SEAL

Date 3-13-19

Signature

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: Enviro Clean Services

Date/ Time Received: 02/13/2019 12:00:00 PM

Work Order #: 614452

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist		Comments
#1 *Temperature of cooler(s)?	5.4	
#2 *Shipping container in good condition?	**Yes**	
#3 *Samples received on ice?	**Yes**	
#4 *Custody Seals intact on shipping container/ cooler?	**Yes**	
#5 Custody Seals intact on sample bottles?	**N/A**	
#6*Custody Seals Signed and dated?	**Yes**	
#7 *Chain of Custody present?	**Yes**	
#8 Any missing/extra samples?	**No**	
#9 Chain of Custody signed when relinquished/ received?	**Yes**	
#10 Chain of Custody agrees with sample labels/matrix?	**Yes**	
#11 Container label(s) legible and intact?	**Yes**	
#12 Samples in proper container/ bottle?	**Yes**	
#13 Samples properly preserved?	**Yes**	
#14 Sample container(s) intact?	**Yes**	
#15 Sufficient sample amount for indicated test(s)?	**Yes**	
#16 All samples received within hold time?	**Yes**	
#17 Subcontract of sample(s)?	**No**	
#18 Water VOC samples have zero headspace?	**N/A**	

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst: PH Device/Lot#:

Checklist completed by: Katie Lowe Date: 02/13/2019

Checklist reviewed by: Jessica Kramer Date: 02/13/2019

ALTAMIRA
formerly known as Enviro Clean Cardinal

Appendix D – Historical Aerial Photographs

1996

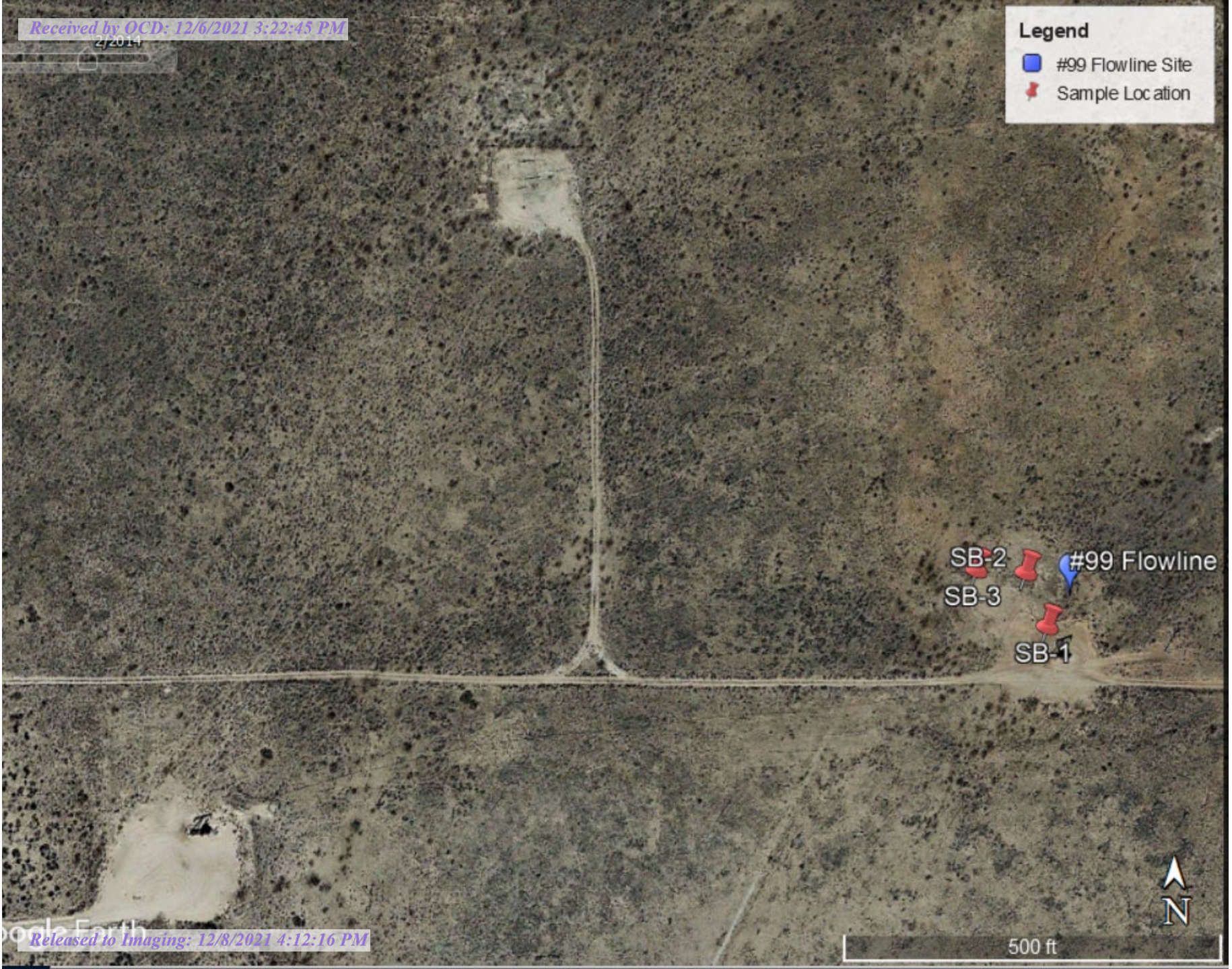
1996

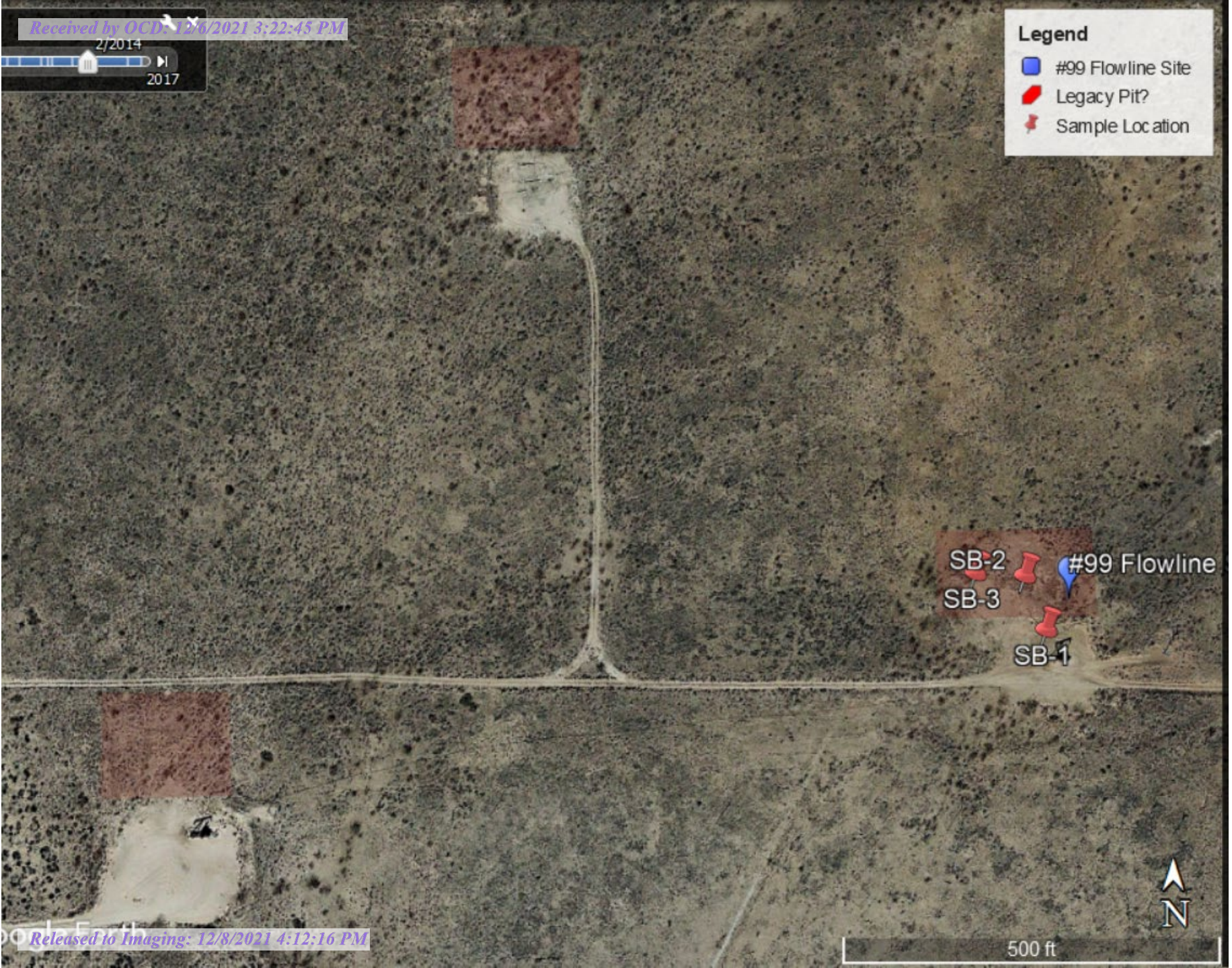
2005

2005


Legend
#99 Flowline Site
Legacy Pit?
Sample Location
SB-2
SB-3
SB-1
#99 Flowline
N
500 ft

2014





2014

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 65179

CONDITIONS

Operator: RAM ENERGY LLC 5100 East Skelly Drive Tulsa, OK 74135	OGRID: 309777
	Action Number: 65179
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
bbillings	Approved as per both work plans (9/2019 and 9/2021) And sample excavation as per Rule 29 requirements)	12/8/2021