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March 15, 2017

DEPT. OF ENVIRONMENTAL QUALITY

Oregon Department of Environmental Quality
AQ Permit Coordinator
700 NE Multnomah Street, Ste 600
Portland, Oregon 97232

Re: **Intel Corporation, Aloha and Ronler Acres Campuses, ACDP 34-2681-ST-01
Calendar Year 2016 Annual Report**

In accordance with the requirements set forth in Oregon Department of Environmental Quality (ODEQ) Permit ACDP 34-2681-ST-01 Condition 77.b., Intel Corporation (Intel) is submitting three (3) copies of this annual report. It should be noted that there were no instances of deviations from permit requirements within the air permit #34-2681-ST-01 to be included in this report for 2016. This annual report is being submitted in a timely manner on or before March 15, 2017 and includes the following:

- 77.b.ii.: The emission fee report
- 77.b.iii.: A summary of the Excess Emissions and Upset log
- 77.b.iv.: The annual certification that the risk management plan is being properly implemented
- 77.b.v.: The type and amount of fuel combusted
- 77.b.vi.: The calculated 12-month rolling emission rates for PM, PM₁₀, PM_{2.5}, SO₂, CO, NO_x, VOC, Fluorides, combined HAPs and individual HAPs

NOTES:

- Reporting for individual HAPs is only required for pollutants with emission rates of 0.1 or more tons/yr
 - The GHG emissions report will be submitted on March 31 as per OAR 340, Division 215.
- 77.b/vii.: Revisions of the pollutant capture efficiency function used for compliance emission calculations in condition 60.
 - 77.b.viii.: A summary of the physical changes, additions and/or process modifications as well as the pollution prevention project(s) performed to offset emission increases associated with these change/modification, pre-approved pursuant to Condition 16. In addition, the permittee must identify and summarize any change(s) with the associated emission increase of five (5) or more tons of VOC or one (1) or more tons of any HAP on a yearly basis
 - 77.b.ix.: Summary of complaints relating to air quality received by permittee during the year
 - 77.b.x.: List major maintenance performed on pollution control equipment.
 - 77.b.xi.: There are no applicable Subpart Dc specific reporting requirements for affected facilities that are exclusively natural gas fired.

Intel Corporation
2501 NW 229th Ave
Hillsboro, OR 97124
www.intel.com

77.b.ii.: Emissions fee report:

Attachment A to this annual report includes Form F1101 as the emission fee report.

77.b.iii.: Summary of the Excess Emissions and Upset log:

There were no excess emissions or upset events in calendar year 2016 to include in the log

77.b.iv.: Annual certification that the risk management plan (RMP) is being properly implemented:

The Ronler Acres campus has an RMP and was last updated in March, 2016. The RMP is current and is implemented as required. The Aloha campus does not store regulated substances in quantities exceeding the RMP applicability threshold quantities and therefore does not have an RMP.

77.b.v.: The type and amount of fuel combusted:

The Ronler Acres and Aloha campuses only combust natural gas and diesel fuel. The diesel fuel is fired within the emergency generators and fire pumps while natural gas is fired in boilers, RCTOs, heaters, and Point of Use (POU) abatement devices. The quantity of these fuels combusted in 2016 are summarized below for Ronler Acres and Aloha combined.

- Diesel Fuel Combusted
 - Aloha: 2,070 gallons/yr
 - Ronler Acres: 24,754 gallons/yr
 - Total: 26,824 gallons/yr
- Natural Gas Combusted
 - Aloha: 162.6 MMscf/yr
 - Ronler Acres: 1,009.9 MMscf/yr
 - Total: 1,172.4 MMscf/yr

77.b.vi.: Calculated 12-month rolling emissions:

Attachment B to this annual report includes the calculated 12-month rolling emission rates for PM, PM₁₀, PM_{2.5}, SO₂, CO, NO_x, VOC, Fluorides, combined HAPs, and individual HAPs with annual emissions of 0.1 or more tons/yr.

77.b.vii.: Revisions of the pollutant capture efficiency:

There was no revisions of the pollutant capture efficiency functions used for compliance emission calculations in condition 60 (RCTO emission calculations)

77.b.viii.: Summary of physical changes:

Below is a summary of the physical changes, additions and/or process modifications.

- In December of 2015, a Type 1 Notice of Intent to Construct application was submitted for a pilot wet electrostatic precipitator (WESP) to be installed on the oxidizer outlet of D1X RCTO #1. Subsequently, an approval letter was issued (NC 028454). A construction completion form was then submitted notating that construction was completed in May, 2016 and the unit was placed into operation in June, 2016.

- In April of 2016, a Type 2 Notice of Intent to Construct application was submitted for the following projects:
 - RP1 Boiler replacement and RP1 & RA2 Burner Improvements
 - D1B Emergency Generator Replacements including diesel particulate matter filters
 - Aloha F15 Fitness Center Hot Water Heater replacement
 This application was approved in May of 2016 and construction has commenced on all of the projects. The Aloha F15 Fitness Center hot water heater and D1B Emergency Generator replacement projects are now complete. The RP1 and RA2 boiler projects are ongoing and expected to be completed in Q2 of 2017.
- In August of 2016, a Type 2 Notice of Intent to Construct application was submitted for the incorporation of two office buildings previously owned and operated by Maxim Integrated, along Evergreen Parkway adjacent to the Ronler Acres facility. These office buildings include two small boilers, one domestic hot water heater, and one emergency generator. The current plans for these buildings are as office space only.
- In October of 2016, D1X RCTO #7 became operational. This unit is covered under the current ACDP air permit.

77.b.ix.: Summary of complaints:

Intel is not aware of any complaints received relating to air quality during calendar year 2016.

77.b.x.: List of major maintenance performed on pollution control equipment:

Attachment C to this annual report includes a list of major maintenance performed on the RCTOs and scrubbers at the Ronler Acres and Aloha campuses.

77.b.xi.: NSPS Subpart Dc reporting requirements:

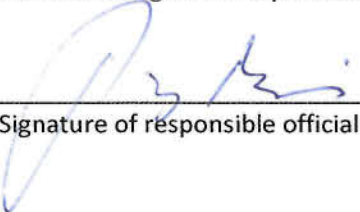
Intel continues to fire natural gas exclusively in all boilers at the Ronler Acres and Aloha campuses. Therefore, there are no applicable Subpart Dc reporting requirements.

Statement of Certification (as required by Permit Condition 74):

Based on information and belief formed after reasonable inquiry, the statements and information in this document and any attachments are true, accurate and complete. I also certify that all statements made concerning compliance, which are based on monitoring required by the permit but not required to be submitted to DEQ, are true, accurate and complete based on information and belief formed after reasonable inquiry.

PENG BAI
Name of designated responsible official

Corporate Vice President
Title of responsible official


Signature of responsible official

3/15/2017
Date

Please contact or me (rafe.a.christopherson@intel.com; 503-329-0649) or Stephanie Shanley (stephanie.b.shanley@intel.com; 503-319-6285) if you have any questions.

Sincerely,



Rafe Christopherson
Senior Environmental Engineer

INTEL CORPORATION

cc: George Davis, ODEQ
Site Air Correspondence File

Attachment A:

DEQ Form F1101



State of Oregon
Department of
Environmental
Quality

Total Emissions by Regulated Pollutant

FORM F1101

1. Reporting year: 2016	
2. Facility name: Intel Corporation - Aloha & Ronler Acres	4. Permit number: ACDP 34-2681-ST-01
3. Aloha Campus, 3585 SW 198th Ave, Aloha, OR 97007 <hr/> Mailing street address or PO Box <hr/> Ronler Acres, 2501 NW 229th Ave, Hillsboro, OR 97124 <hr/> Mailing city, state and ZIP code	5. Rafe Christopherson, Senior Env Engineer <hr/> Contact name and title (503) 329-0649 <hr/> Phone number with area code
6. Emissions (in tons) by regulated air pollutant subject to fees for the reporting year:	
PM ₁₀ *	<u>12.4</u>
or PM	_____
or PM _{2.5}	_____
or TSP	_____
SO ₂	<u>7.2</u>
NO _x (as NO ₂)	<u>33.0</u>
VOC	<u>53.0</u>
* Report only one particulate category. If permit has a PSEL for PM ₁₀ , report emissions of PM ₁₀ . If permit has a PSEL for particulate matter (PM) and not PM ₁₀ , report emissions of PM. If permit has a PSEL for PM _{2.5} and not PM ₁₀ or PM, report emissions of PM _{2.5} . If permit has a PSEL for total suspended particulate (TSP) and not PM ₁₀ , PM or PM _{2.5} , report emissions of TSP.	
7. Total emissions (in tons) of pollutants subject to fees for the reporting year: <u>105.6</u>	
8. Statement of certification:	
I have reviewed this report and all supporting documentation in their entirety and to the best of my knowledge, information, and belief formed after reasonable inquiry, the statements and information contained herein are true, accurate and complete.	
<u>PENG BAI</u> Name of designated responsible official	<u>Corporate Vice President</u> Title of responsible official
<u>[Signature]</u> Signature of responsible official	<u>3/15/2017</u> Date

Attachment B:

Calendar Year 2016 12-Month Rolling Emission Inventory

Pollutant	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	PSEL tons/year	Units
PM	1.7	3.1	4.6	6.0	7.3	8.7	10.4	11.8	13.2	14.6	16.2	17.8	41	tons per year
PM10	1.2	2.2	3.2	4.2	5.1	6.0	7.3	8.2	9.2	10.1	11.3	12.4	35	
PM2.5	0.9	1.5	2.1	2.8	3.3	3.9	4.8	5.4	5.9	6.5	7.3	8.1	31	
NOx	3.1	5.5	8.2	10.9	13.3	16.1	18.6	21.4	24.3	27.0	29.8	33.0	197	
CO	4.0	7.7	11.9	15.5	18.9	22.4	25.9	29.3	33.1	36.9	40.7	45.0	229	
SO2	0.6	1.1	1.8	2.3	2.9	3.5	4.1	4.6	5.1	5.8	6.4	7.2	39	
VOC	4.8	10.2	14.9	18.7	23.1	27.1	31.1	36.3	40.2	44.5	48.7	53.0	178	
Total Fluorides	0.2	0.5	0.7	1.0	1.3	1.5	1.7	2.0	2.2	2.4	2.7	3.0	6.4	
Total HAPs	0.47	0.88	1.38	1.79	2.28	2.80	3.19	3.59	4.07	4.55	5.01	5.43	24	
Individual HAP - HF	0.33	0.64	0.98	1.31	1.64	1.96	2.27	2.58	2.88	3.19	3.51	3.84	9	
Individual HAP - Cl2	0.05	0.09	0.16	0.19	0.28	0.36	0.39	0.42	0.53	0.61	0.66	0.71	9	
Individual HAP - HCl	0.05	0.07	0.09	0.11	0.14	0.21	0.22	0.25	0.28	0.31	0.34	0.36	9	
Individual HAP - Methanol	0.02	0.04	0.09	0.11	0.14	0.17	0.19	0.22	0.23	0.28	0.31	0.33	9	
Individual HAP - HCN	0.02	0.03	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.13	0.14	0.16	9	

Notes:

* Rolling 12-month totals started in January 2016 with the issuance of the ACDP dated 1/22/2016 (Permit #: 34-2681-ST-01), therefore, emissions in January are for 1 month, February for 2 months, etc.

* All individual HAPs with annual emissions above 0.1 tons per year are reported above

Attachment C:

List of Major Maintenance on RCTOs and Scrubbers

Ronler Acres Facility
List of Major Maintenance - CY2016

WBS	WO#	description	WO type	Actual finish date	Site	Asset	status	Wo asset description
1271	21492029	PM EXSC Scrubber D1C-SC133-1-200 (Annual)	PM	1/15/2016	RA-D1C	D1C-SC133-1-200	CLOSE	CUB2 Acid Scrubber SC-133-1-200
1271	21569459	PM EXSC Scrubber D1C-SC133-1-100 (Semi-Annual)	PM	1/22/2016	RA-D1C	D1C-SC133-1-100	CLOSE	D1C FAB Acid Scrubber 1 SC-133-1-100
1271	21569469	PM EXSC Scrubber D1C-SC133-2-100 (Semi-Annual)	PM	1/22/2016	RA-D1C	D1C-SC133-2-100	CLOSE	D1C FAB Acid Scrubber 2 SC-133-2-100
1271	21569495	PM EXSC Scrubber D1C-SC133-4-100 (Semi-Annual)	PM	1/22/2016	RA-D1C	D1C-SC133-4-100	CLOSE	D1C FAB Acid Scrubber 4 SC-133-4-100
1271	21776956	D1C scrubber #1 pH probe AY-133-1-109 replacement	CM	4/21/2016	RA-D1C	D1C-SC133-1-100	CLOSE	D1C FAB Acid Scrubber 1 SC-133-1-100
1271	21787195	D1C-SC133-2-11 Replace Recirc paddle wheel	CM	5/3/2016	RA-D1C	D1C-SC133-2-100	CLOSE	D1C FAB Acid Scrubber 2 SC-133-2-100
1271	21828789	Pre Work--Replace pH transmitter with 56 and 3400 probe	OPS	5/14/2016	RA-D1C	D1C-SC133-4-100	CLOSE	D1C FAB Acid Scrubber 4 SC-133-4-100
1271	21569519	PM EXSC Scrubber D1C-SC133-2-100 (Annual)	PM	5/15/2016	RA-D1C	D1C-SC133-2-100	CLOSE	D1C FAB Acid Scrubber 2 SC-133-2-100
1271	21569534	PM EXSC Scrubber D1C-SC133-4-100 (Annual)	PM	5/26/2016	RA-D1C	D1C-SC133-4-100	CLOSE	D1C FAB Acid Scrubber 4 SC-133-4-100
1271	21553730	Replace pH transmitter with 56 and 3400 probe	CM	5/28/2016	RA-D1C	D1C-SC133-4-100	CLOSE	D1C FAB Acid Scrubber 4 SC-133-4-100
1271	21569508	PM EXSC Scrubber (Sequenced) D1C-SC133-1-100 (Annual)	PM	8/2/2016	RA-D1C	D1C-SC133-1-100	CLOSE	D1C FAB Acid Scrubber 1 SC-133-1-100
1271	21966171	Trouble Shoot and or replace Makeup Valve see long	CM	8/3/2016	RA-D1C	D1C-SC133-1-200	COMP	CUB2 Acid Scrubber SC-133-1-200
1271	22128109	Ronler Acers Scrubbed Exhaust (EXSC) Scrubber (Sequenced) PM Job Plan D1C-SC133-1-100 (Annual)	PM	10/4/2016	RA-D1C	D1C-SC133-1-100	CLOSE	D1C FAB Acid Scrubber 1 SC-133-1-100
1271	22119483	Ronler Acers Scrubbed Exhaust (EXSC) Scrubber (Sequenced) PM Job Plan D1C-SC133-2-100 (Semi-Annual)	PM	12/11/2016	RA-D1C	D1C-SC133-2-100	COMP	D1C FAB Acid Scrubber 2 SC-133-2-100
1271	21778077	RB1_SC133_7_11 Replace Paddle Wheel	CM	4/23/2016 14:40	RA-D1C	RB1-SC133-7-111	CLOSE	RB1 Planar Scrubber RB1-SC133-7-111
1271	21778076	RB1_SC133_7_00 Replace pH Probe 54e	CM	4/23/2016 14:40	RA-D1C	RB1-SC133-7-111	CLOSE	RB1 Planar Scrubber RB1-SC133-7-111
1271	21954653	RB1_SC133_4_00 Annual PM (See Long)	CM	8/31/2016 15:51	RA-D1C	RB1-SC133-4-111	COMP	RB1 Planar Scrubber RB1-SC133-4-111
1271	21954653	RB1_SC133_4_00 Annual PM (See Long)	CM	8/31/2016 15:51	RA-D1C	RB1-SC133-4-111	COMP	RB1 Planar Scrubber RB1-SC133-4-111

Ronler Acres Facility

List of Major Maintenance - CY2016

WBS	WO#	description	WO type	Actual finish date	Site	Asset	status	Wo asset description
1271	21954653	RB1_SC133_4_00 Annual PM (See Long)	CM	8/31/2016 15:51	RA-D1C	RB1-SC133-4-111	COMP	RB1 Planar Scrubber RB1-SC133-4-111
1271	22117801	RB1_W_SCRB_SMP_3_RC west pump (Logbook: 51375)	CM	9/24/2016 15:55	RA-D1C	RB1-SC133-4-111	CLOSE	RB1 Planar Scrubber RB1-SC133-4-111
1271	22118704	Ronler Acers Scrubbed Exhaust (EXSC) Scrubber (Sequenced) PM Job Plan RB1- SC133-4-111 (Semi-Annual)	PM	11/12/2016 13:02	RA-D1C	RB1-SC133-4-111	COMP	RB1 Planar Scrubber RB1-SC133-4-111
1271	22118681	Ronler Acers Scrubbed Exhaust (EXSC) Scrubber (Sequenced) PM Job Plan RB1- SC133-1-111 (Annual)	PM	12/17/2016 16:22	RA-D1C	RB1-SC133-1-111	COMP	RB1 C4 Scrubber RB1-SC133-1-111
1271	22310149	Lockout and Determ PMP-133-7-101B	OPS	12/19/2016 18:09	RA-D1C	RB1-SC133-7-111	COMP	RB1 Planar Scrubber RB1-SC133-7-111
1271	22310149	Lockout and Determ PMP-133-7-101B	OPS	12/19/2016 18:09	RA-D1C	RB1-SC133-7-111	COMP	RB1 Planar Scrubber RB1-SC133-7-111
1271	21555554	Replace mag flow meter with paddlewheel flowmeter FIT-133-1-105	CM	2/18/2016 14:11	RA-D1D	SC-133-1-100	CLOSE	Fab Acid Exhaust Scrubber SC-133-1-100
1271	21569212	PM EXSC Scrubber SC-133-1-100 (Annual)	PM	3/7/2016 17:27	RA-D1D	SC-133-1-100	CLOSE	Fab Acid Exhaust Scrubber SC-133-1-100
1271	21568788	Replace pH probe AIT-133-1-107	CM	3/8/2016 5:55	RA-D1D	SC-133-1-100	CLOSE	Fab Acid Exhaust Scrubber SC-133-1-100
1271	21753304	D1D-FET133-4-05A Replace Paddle Wheel	CM	4/12/2016 17:44	RA-D1D	SC-133-4-100	CLOSE	Fab Acid Exhaust Scrubber SC-133-4-100
1271	21855800	D1D Scrubber Recirc Sensor Repair (see log)	CM	5/23/2016 14:54	RA-D1D	SC-133-4-100	CLOSE	Fab Acid Exhaust Scrubber SC-133-4-100
1271	21856095	D1D_FIT133_4_05A Repair	CM	5/24/2016 10:50	RA-D1D	SC-133-4-100	CLOSE	Fab Acid Exhaust Scrubber SC-133-4-100
1271	21569243	PM EXSC Scrubber SC-133-4-100 (Annual)	PM	7/27/2016 7:26	RA-D1D	SC-133-4-100	CLOSE	Fab Acid Exhaust Scrubber SC-133-4-100
1271	21787208	Replace recirc. paddle wheel D1D-SC133-2- 00	CM	9/1/2016 10:22	RA-D1D	SC-133-2-100	CLOSE	FAB ACID EXHAUST SCRUBBER SC-133-2-100
1271	21568793	Replace pH probe AIT-133-5-107	CM	9/1/2016 11:25	RA-D1D	SC-133-5-100	CLOSE	Fab Acid Exhaust Scrubber SC-133-5-100
1271	22027833	Replace Paddlewheel on D1D EXSC #3	CM	9/2/2016 12:11	RA-D1D	SC-133-3-100	CLOSE	Fab Acid Exhaust Scrubber SC-133-3-100
1271	22242617	D1D_SC133_4_00 Failed make-up valve	CM	11/12/2016 8:26	RA-D1D	SC-133-4-100	COMP	Fab Acid Exhaust Scrubber SC-133-4-100
1271	22119238	Ronler Acers Scrubbed Exhaust (EXSC) Scrubber (Sequenced) PM Job Plan SC-133- 2-100 (Semi-Annual)	PM	11/13/2016 16:53	RA-D1D	SC-133-2-100	COMP	FAB ACID EXHAUST SCRUBBER SC-133-2-100

Ronler Acres Facility

List of Major Maintenance - CY2016

WBS	WO#	description	WO type	Actual finish date	Site	Asset	status	Wo asset description
1271	22103857	Ronler Acers Scrubbed Exhaust (EXSC) Scrubber (Sequenced) PM Job Plan SC-133-1-100 (Annual)	PM	12/4/2016 16:41	RA-D1D	SC-133-1-100	COMP	Fab Acid Exhaust Scrubber SC-133-1-100
1271	21866672	RP1 SC133-1-00, replace 770max controller (see long)	CM	6/3/2016 15:48	RA-D1D	RP1-SC133-1-100	CLOSE	RP1 EXSC Scrubber RP1-SC133-1-100
1271	21555000	Replace Blowdown Solenoid	CM	8/8/2016 7:36	RA-D1D	RP1-SC133-1-100	CLOSE	RP1 EXSC Scrubber RP1-SC133-1-100
1271	21579850	Replace Entire paddlewheel FET (See Long)	CM	8/26/2016 7:22	RA-D1D	RP1-SC133-1-100	CLOSE	RP1 EXSC Scrubber RP1-SC133-1-100
1271	22061025	FAT RP1 Scrubber #1	PR	9/16/2016 14:08	RA-D1D	RP1-SC133-1-100	CLOSE	RP1 EXSC Scrubber RP1-SC133-1-100
1271	22061030	FAT RP1 Scrubber #2	PR	10/3/2016 18:16	RA-D1D	RP1-SC133-2-100	CLOSE	RP1 EXSC Scrubber RP1-SC133-2-100
1271	21623236	PM EXSC Scrubber D1X-SC133-2-00 (Semi-Annual)	PM	6/5/2016 14:32	RA-D1X	D1X-SC133-2-00	CLOSE	FAB Acid Exhaust Scrubber - D1X-SC133-2-00
1271	21553721	Replace paddle wheel D1X FIT133-3-05A	CM	6/5/2016 14:32	RA-D1X	D1X-SC133-3-00	CLOSE	FAB Acid Exhaust Scrubber - D1X-SC133-3-00
1271	21623240	PM EXSC Scrubber D1X-SC133-3-00 (Semi-Annual)	PM	6/5/2016 16:13	RA-D1X	D1X-SC133-3-00	CLOSE	FAB Acid Exhaust Scrubber - D1X-SC133-3-00
1271	21800476	PM EXSC Scrubber (Sequenced) D1X-SC133-4-00 (Semi-Annual)	PM	6/15/2016 17:45	RA-D1X	D1X-SC133-4-00	CLOSE	FAB Acid Exhaust Scrubber - D1X-SC133-4-00
1271	21764991	Replace D1X_FET133_4_05A Recirc paddle wheel	CM	9/8/2016 14:58	RA-D1X	D1X-SC133-4-00	CLOSE	FAB Acid Exhaust Scrubber - D1X-SC133-4-00
1271	21765062	Replace D1X_SC133_2_07A blow down solenoid Logbook: 365968	CM	9/12/2016 15:45	RA-D1X	D1X-SC133-2-00	CLOSE	FAB Acid Exhaust Scrubber - D1X-SC133-2-00
1271	22103100	Ronler Acers Scrubbed Exhaust (EXSC) Scrubber (Sequenced) PM Job Plan D1X-SC133-1-00 (Annual)	PM	12/8/2016 17:19	RA-D1X	D1X-SC133-1-00	COMP	FAB Acid Exhaust Scrubber - D1X-SC133-1-00
1271	21483589	PM EXSC Scrubber F20-SC133-3-111 (Annual)	PM	1/24/2016 14:13	RA-F20	F20-SC133-3-111	CLOSE	F20 SC-133-3-111 Scrubber System
1271	21777727	Replace Paddlewheel on F20 Scrubber 3	CM	4/26/2016 16:07	RA-F20	F20-SC133-3-111	CLOSE	F20 SC-133-3-111 Scrubber System
1271	22039533	D1B_SC133_3_00 Replace Recirc. Paddlewheel	CM	8/26/2016 7:21	RA-F20	F20-SC133-3-111	CLOSE	F20 SC-133-3-111 Scrubber System
1271	22201995	D1B_SC133_3_00 Replace paddlewheel	CM	11/4/2016 17:38	RA-F20	F20-SC133-3-111	COMP	F20 SC-133-3-111 Scrubber System
1275	21379230	PM VOC Abatement Unit D1C-VOC138-2-120 (Semi-Annual)	PM	1/13/2016 17:56	RA-D1C	D1C-VOC138-2-120	CLOSE	D1C VOC Abatement System VOC-138-2-120
1275	21555009	D1C VOC #2 Rotor #1 drive belt	CM	1/13/2016 17:59	RA-D1C	D1C-VOC138-2-120	CLOSE	D1C VOC Abatement System VOC-138-2-120

Ronler Acres Facility

List of Major Maintenance - CY2016

WBS	WO#	description	WO type	Actual finish date	Site	Asset	status	Wo asset description
1275	21588378	PM VOC Abatement Unit D1C-VOC138-1-120 (Annual)	PM	4/22/2016 18:22	RA-D1C	D1C-VOC138-1-120	CLOSE	D1C VOC Abatement System VOC-138-1-120
1275	21785867	D1C TS Rotor 1 Failure.	CM	4/24/2016 11:38	RA-D1C	D1C-VOC138-2-120	CLOSE	D1C VOC Abatement System VOC-138-2-120
1275	21744258	PM VOC Abatement Unit D1C-VOC138-2-120 (Annual)	PM	5/30/2016 18:10	RA-D1C	D1C-VOC138-2-120	CLOSE	D1C VOC Abatement System VOC-138-2-120
1275	21865962	Replace Combustion Modulating Motor	CM	5/31/2016 6:57	RA-D1C	D1C-VOC138-3-120	CLOSE	D1C VOC Abatement System VOC-138-3-120
1275	21760682	O730 PM VOC Abatement Unit D1C-VOC138-3-120 (Semi-Annual)	PM	6/20/2016 11:40	RA-D1C	D1C-VOC138-3-120	CLOSE	D1C VOC Abatement System VOC-138-3-120
1275	21919787	Replace Ratio Regulator and Tune Combustion	CM	7/22/2016 6:41	RA-D1C	D1C-VOC138-3-120	COMP	D1C VOC Abatement System VOC-138-3-120
1275	21893965	D1C-VOC138-2-120 AC Unit and power Transformer failed. Need to replace both.	CM	7/27/2016 17:54	RA-D1C	D1C-VOC138-2-120	COMP	D1C VOC Abatement System VOC-138-2-120
1275	22038690	Replace Faulty Combustion Modulating Valve Actuator	CM	8/16/2016 16:46	RA-D1C	D1C-VOC138-1-120	CLOSE	D1C VOC Abatement System VOC-138-1-120
1275	22002407	Replace Natural Gas Valve (see description)	OPS	8/17/2016 14:00	RA-D1C	D1C-VOC138-1-120	CLOSE	D1C VOC Abatement System VOC-138-1-120
1275	21855422	O700 PM VOC Abatement Unit D1C-VOC138-1-120 (Semi-Annual)	PM	9/7/2016 14:57	RA-D1C	D1C-VOC138-1-120	CLOSE	D1C VOC Abatement System VOC-138-1-120
1275	22038927	Replace Natural Gas Bypass Regulator. Logbook:434907	CM	9/7/2016 15:28	RA-D1C	D1C-VOC138-1-120	COMP	D1C VOC Abatement System VOC-138-1-120
1275	22038928	Replace Natural Gas Piilot Regulator. Logbook: 434908	CM	9/7/2016 15:32	RA-D1C	D1C-VOC138-1-120	COMP	D1C VOC Abatement System VOC-138-1-120
1275	21605460	Replace Intermediate Concentrate Temperature Sensor	CM	9/25/2016 13:10	RA-D1C	D1C-VOC138-1-120	CLOSE	D1C VOC Abatement System VOC-138-1-120
1275	22079569	O700 PM VOC Abatement (Sequenced) Unit D1C-VOC138-2-120 (Semi-Annual)	PM	11/1/2016 17:08	RA-D1C	D1C-VOC138-2-120	COMP	D1C VOC Abatement System VOC-138-2-120
1275	22050191	D1C-VOC138-2-120 AC Unit and power Transformer failed. Need to replace both. Logbook: 410423	CM	11/1/2016 17:17	RA-D1C	D1C-VOC138-2-120	COMP	D1C VOC Abatement System VOC-138-2-120
1275	21988973	Replace Ratio Regulator and Tune Combustion (Logbook Entry: 449693)	CM	11/1/2016 17:24	RA-D1C	D1C-VOC138-2-120	COMP	D1C VOC Abatement System VOC-138-2-120
1275	22097861	O700 PM VOC Abatement (Sequenced) Unit D1C-VOC138-3-120 (Annual)	PM	11/6/2016 17:19	RA-D1C	D1C-VOC138-3-120	COMP	D1C VOC Abatement System VOC-138-3-120

Ronler Acres Facility

List of Major Maintenance - CY2016

WBS	WO#	description	WO type	Actual finish date	Site	Asset	status	Wo asset description
1275	22330665	Rotor 2 fault	CM	12/30/2016 17:47	RA-D1C	D1C-VOC138-3-120	COMP	D1C VOC Abatement System VOC-138-3-120
1275	21365196	PM VOC Abatement Unit VOC-138-3-120 (Semi-Annual)	PM	1/4/2016 17:48	RA-D1D	VOC-138-3-120	CLOSE	VOC Abatement System VOC-138-3-120
1275	21542886	VOC #2 Oxidizer Fan Alignment	CM	1/20/2016 17:51	RA-D1D	VOC-138-2-120	CLOSE	VOC Abatement System VOC-138-2-120
1275	21667159	D1D VOC Unit 3 Relay Installation / FAT (S Doten)	PR	3/2/2016 17:30	RA-D1D	VOC-138-3-120	CLOSE	VOC Abatement System VOC-138-3-120
1275	21575292	PM VOC Abatement Unit VOC-138-4-120 (Semi-Annual)	PM	4/14/2016 18:46	RA-D1D	VOC138-4-120	CLOSE	VOC Abatement System VOC-138-4-120
1275	21575288	PM VOC Abatement Unit VOC-138-1-120 (Annual)	PM	4/27/2016 6:18	RA-D1D	VOC-138-1-120	CLOSE	VOC Abatement System VOC-138-1-120
1275	21786813	D1D VOC1 Repair Combustion Chamber (see Long)	CM	4/27/2016 16:53	RA-D1D	VOC-138-1-120	CLOSE	VOC Abatement System VOC-138-1-120
1275	21670803	PM VOC Abatement Unit VOC-138-2-120 (Annual)	PM	5/9/2016 17:44	RA-D1D	VOC-138-2-120	CLOSE	VOC Abatement System VOC-138-2-120
1275	21744616	0700 PM VOC Abatement Unit VOC-138-3-120 (Annual)	PM	6/27/2016 17:44	RA-D1D	VOC-138-3-120	CLOSE	VOC Abatement System VOC-138-3-120
1275	21855424	0700 PM VOC Abatement Unit VOC-138-1-120 (Semi-Annual)	PM	9/4/2016 17:29	RA-D1D	VOC-138-1-120	CLOSE	VOC Abatement System VOC-138-1-120
1275	21855436	0700 PM VOC Abatement (Sequenced) Unit VOC-138-4-120 (Annual)	PM	10/10/2016 16:43	RA-D1D	VOC138-4-120	CLOSE	VOC Abatement System VOC-138-4-120
1275	21855430	0700 PM VOC Abatement Unit VOC-138-2-120 (Semi-Annual)	PM	10/24/2016 6:39	RA-D1D	VOC-138-2-120	CLOSE	VOC Abatement System VOC-138-2-120
1275	22265046	D1D EXVO VOC #1 Warranty repair (see long)	WA	12/5/2016 17:23	RA-D1D	VOC-138-1-120	COMP	VOC Abatement System VOC-138-1-120
1275	21855434	Ronler Acers VOC Abatement System (EXVO) (Sequenced) PM Job Plan VOC-138-3-120 (Semi-Annual)	PM	12/7/2016 17:07	RA-D1D	VOC-138-3-120	COMP	VOC Abatement System VOC-138-3-120
1275	21623258	PM VOC Abatement Unit D1X-VOC138-5-20 (Annual)	PM	3/17/2016 14:59	RA-D1X	D1X-VOC138-5-20	CLOSE	VOC Abatement System
1275	21646928	PM VOC Abatement Unit D1X-VOC138-6-20 (Annual)	PM	4/2/2016 9:58	RA-D1X	D1X-VOC138-6-20	CLOSE	VOC Anguil Abatement System
1275	21646932	PM VOC Abatement Unit D1X-VOC138-1-20 (Annual)	PM	5/3/2016 13:57	RA-D1X	D1X-VOC138-1-20	CLOSE	VOC Abatement System
1275	21693020	PM VOC Abatement Unit (Sequenced) D1X-VOC138-4-20 (Annual)	PM	6/3/2016 6:22	RA-D1X	D1X-VOC138-4-20	CLOSE	VOC Abatement System - D1X-VOC138-4-20

Ronler Acres Facility

List of Major Maintenance - CY2016

WBS	WO#	description	WO type	Actual finish date	Site	Asset	status	Wo asset description
1275	21726859	O700 PM VOC Abatement Unit D1X-VOC138-3-20 (Semi-Annual)	PM	6/20/2016 4:56	RA-D1X	D1X-VOC138-3-20	CLOSE	VOC Abatement System - D1X-VOC138-3-20
1275	21718233	O:OO--PM VOC Abatement Unit D1X-VOC138-2-20 (Annual)	PM	6/22/2016 15:55	RA-D1X	D1X-VOC138-2-20	CLOSE	VOC Abatement System
1275	21855416	O700 PM VOC Abatement Unit D1X-VOC138-5-20 (Semi-Annual)	PM	8/7/2016 15:27	RA-D1X	D1X-VOC138-5-20	CLOSE	VOC Abatement System
1275	21855418	O700 PM VOC Abatement Unit D1X-VOC138-6-20 (Semi-Annual)	PM	8/15/2016 7:17	RA-D1X	D1X-VOC138-6-20	CLOSE	VOC Anguil Abatement System
1275	22118155	D1X VOC Unit #1 Pre-Heat Fan Failure (Logbook Entry: 452160)	CM	9/20/2016 9:10	RA-D1X	D1X-VOC138-1-20	CLOSE	VOC Abatement System
1275	21855426	O700 PM VOC Abatement Unit D1X-VOC138-1-20 (Semi-Annual)	PM	10/2/2016 16:55	RA-D1X	D1X-VOC138-1-20	CLOSE	VOC Abatement System
1275	22119469	Ronler Acers VOC Abatement System (EXVO) (Sequenced) PM Job Plan D1X-VOC138-3-20 (Annual)	PM	11/4/2016 7:00	RA-D1X	D1X-VOC138-3-20	COMP	VOC Abatement System - D1X-VOC138-3-20
1275	22099818	Ronler Acers VOC Abatement System (EXVO) (Sequenced) PM Job Plan D1X-VOC138-4-20 (Semi-Annual)	PM	12/21/2016 13:24	RA-D1X	D1X-VOC138-4-20	COMP	VOC Abatement System - D1X-VOC138-4-20
1275	21426719	Troubleshoot and repair noisy pre-heat fan	CM	12/29/2016 16:49	RA-D1X	D1X-VOC138-2-20	CLOSE	VOC Abatement System
1275	22103054	Ronler Acers VOC Abatement System (EXVO) (Sequenced) PM Job Plan D1X-VOC138-2-20 (Semi-Annual)	PM	12/29/2016 16:59	RA-D1X	D1X-VOC138-2-20	COMP	VOC Abatement System
1275	21365424	PM VOC Abatement Unit D1B-VOC138-1-22 (Semi-Annual)	PM	1/5/2016 12:42	RA-F20	D1B-VOC138-1-22	CLOSE	D1B-VOC138-1-22 VOC Abatement System
1275	21851882	O700 PM VOC Abatement (Sequenced) Unit D1B-VOC138-2-22 (Annual)	PM	6/10/2016 7:18	RA-F20	D1B-VOC138-2-22	CLOSE	D1B-VOC138-2-22 VOC Abatement System
1275	21851884	O700 PM VOC Abatement (Sequenced) Unit D1B-VOC138-3-22 (Annual)	PM	6/10/2016 8:00	RA-F20	D1B-VOC-138-3-22	CLOSE	D1B-VOC-138-3-22 VOC Abatement System
1275	21851880	O700 PM VOC Abatement Unit D1B-VOC138-1-22 (Annual)	PM	7/5/2016 16:53	RA-F20	D1B-VOC138-1-22	CLOSE	D1B-VOC138-1-22 VOC Abatement System
1275	21855428	O700 PM VOC Abatement Unit D1B-VOC138-2-22 (Semi-Annual)	PM	11/9/2016 12:12	RA-F20	D1B-VOC138-2-22	COMP	D1B-VOC138-2-22 VOC Abatement System
1275	21855432	O700 PM VOC Abatement Unit D1B-VOC138-3-22 (Semi-Annual)	PM	11/12/2016 16:12	RA-F20	D1B-VOC-138-3-22	COMP	D1B-VOC-138-3-22 VOC Abatement System

Ronler Acres Facility

List of Major Maintenance - CY2016

WBS	WO#	description	WO type	Actual finish date	Site	Asset	status	Wo asset description
1275	21855420	Ronler Acers VOC Abatement System (EXVO) (Sequenced) PM Job Plan D1B-VOC138-1-22 (Semi-Annual)	PM	12/21/2016 15:12	RA-F20	D1B-VOC138-1-22	COMP	D1B-VOC138-1-22 VOC Abatement System

Aloha Facility

List of Major Maintenance - CY2016

Equipment	Date	Description
Munters #1	12/29/2015	Semi-Annual
Munters #1	7/10/2016	Annual
Munters #1	10/27/2016	Auto-rebalance
Munters #1	1/16/2017	Semi-Annual
Munters #1	1/17/2017	Seal repairs
Munters #2	12/8/2015	Semi-Annual
Munters #2	6/13/2016	Annual
Munters #2	12/12/2016	Semi-Annual
Scrubber #1	12/26/2015	Annual
Scrubber #1	12/8/2016	Annual
Scrubber #1	12/28/2016	Lid, sump cleaning, and nozzle replacement
Scrubber #1	9/5/2016	quarterly
Scrubber #1	6/1/2016	quarterly
Scrubber #1	3/17/2016	quarterly
Scrubber #1	6/24/2016	Packing PDIT replacement
Scrubber #1	6/24/2016	Flow transmitter replacement
Scrubber #1	9/19/2016	Flow transmitter replacement
Scrubber #2	11/6/2015	Annual
Scrubber #2	2/6/2016	quarterly
Scrubber #2	5/5/2016	quarterly
Scrubber #2	8/12/2016	quarterly
Scrubber #2	10/10/2016	Flow transmitter replacement
Scrubber #2	1/27/2016	Flow transmitter replacement
Scrubber #2	11/12/2016	Annual
Scrubber #3	12/26/2015	Annual
Scrubber #3	3/17/2016	quarterly
Scrubber #3	6/1/2016	quarterly
Scrubber #3	9/5/2016	quarterly
Scrubber #3	5/27/2016	Packing PDIT replacement
Scrubber #3	5/27/2016	Flow transmitter replacement
Scrubber #3	9/9/2016	Flow transmitter replacement
Scrubber #3	11/29/2016	annual
Scrubber #4	11/6/2015	Annual
Scrubber #4	2/6/2016	quarterly
Scrubber #4	5/5/2016	quarterly
Scrubber #4	8/12/2016	quarterly
Scrubber #4	6/2/2016	Packing PDIT replacement
Scrubber #4	6/2/2016	Flow transmitter replacement
Scrubber #4	11/12/2016	Annual
Scrubber #5	11/6/2015	Annual
Scrubber #5	2/6/2016	quarterly
Scrubber #5	5/5/2016	quarterly
Scrubber #5	8/12/2016	quarterly
Scrubber #5	5/5/2016	Packing PDIT replacement
Scrubber #5	5/5/2016	Flow transmitter replacement
Scrubber #5	9/26/2016	Flow transmitter replacement
Scrubber #5	11/25/2016	Annual
Scrubber #5	1/26/2017	Lid, sump cleaning, and nozzle replacement
Scrubber #6	12/26/2015	Annual
Scrubber #6	3/17/2016	quarterly
Scrubber #6	6/1/2016	quarterly
Scrubber #6	9/5/2016	quarterly
Scrubber #6	7/28/2016	Packing PDIT replacement
Scrubber #6	7/28/2016	Flow transmitter replacement
Scrubber #6	11/29/2016	Lid, sump cleaning, and nozzle replacement
Scrubber #6	12/2/2016	Annual