



# HONEYWELL AERO AESA PRESENTATION

DATE: OCTOBER 18, 2016  
 SCOTT HARCZYNSKI, GREG BOPP, MARJI BAUMANN,  
 LINDSEY NIELSEN, NICOLE CARVER



# Honeywell Aerospace

- AZ Facilities

- 19019 N. 59th Street, Glendale: 533
- 21111 N. 19th Ave., Phoenix: 2,440
- 4805 Mohave Airport Dr., Kingman: 53
- 111 S. 34th Street, Phoenix: 1,876
- 1944 E. Sky Harbor Circle, Phoenix: 1,238
- 1300 W. Warner Rd., Tempe: 1,627
- 11100 N. Oracle Rd, Tucson: 770

- Organization: Private

- Type of Business: Global provider of avionic, engines and engine systems



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# Our HSE&F Vision and Mission Statements

## Sustainable Opportunity Policy



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**Honeywell**

• **Vision:** Integrated Business partner providing unparalleled HSE&F value and uncompromising commitment to employee health and safety and environmental stewardship

• **Mission:** Protect people and the environment through the capabilities of our global talent and the strength of our HSE&F Management System

able Opportunity Policy  
to Health, Safety and the Environment  
environmental considerations into all aspects of our  
is, our communities and the environment, achieve  
of productivity, drive compliance with all applicable  
s that expand the sustainable capacity of our world.  
al management systems reflect our values and help  
of our employees, and minimize the environmental  
h efforts to prevent illness, injury and pollution.  
p opportunities for expanding global markets, while  
roving security and safety, and reducing emissions.  
e with all of our health, safety, environmental and  
e operate.  
y and the environment is an integral aspect of our  
id services, and of the lifecycle management of our  
y a global standard that provides protection of both  
nt during normal and emergency situations.  
r to reduce emissions, waste and inefficient use of  
and work within our communities to advance laws,  
guard the public  
strict standards in cases where standards are less  
idual employees are accountable for their role in  
review our progress and strive for continuous  
alth, safety, and the environment and to bearing  
we operate.

  
Tim Maloney  
President and CEO, Honeywell Aerospace

Rev. 0

# Conservation and Pollution Prevention

- ✓ Trip reduction program participation and innovation;
- ✓ Water conservation projects;
- ✓ Programs to minimize the production of waste; source reduction, product substitution, toxic inventory reduction, Waste Diversion Rate reduction, substitution, etc;
- ✓ Programs to reduce energy consumption, e.g., Energy Star, Green Lights;
- ✓ Use of renewable energy technologies;
  - NA: Instituting an environmental reclamation or improvement project, e.g., creating a wetland.
  - NA: Programs to reduce regulated discharges to the environment.



# Trip Reduction Program

- Trip Reduction Program
  - Honeywell Engines, Sky Harbor, Tempe, Deer Valley and Glendale sites have been participating in the Honeywell Arizona Trip Reduction Program (TRP) for several years.
  - Over 7,700 employees are targeted (based on 2016 census).
  - Over 4,500 employees are estimated to respond to the 2016 survey (approximately 60% of the total employee population). Some key elements of the Honeywell TRP include:
    - Special Contests: Bike Month, Rideshare, High Pollution Advisory, Transportation Survey
    - Monthly Clean Air Contests to encourage carpooling, transit use, and other alternate modes of transportation
    - Subsidies and reserved parking for Vanpool participants
    - Fully-subsidized Valley Metro Smart Cards are provided to employees for use on both the Light Rail and Valley metro
    - Reserved carpool spaces for registered carpool groups (433 employees registered for carpool program).

# Honeywell Aerospace: Water Use Reduction

- **Water Use Reduction Program**
  - Projects in 2016 targeted the following opportunities
    - Low flow faucets/urinal flush
    - Elimination of irrigation sprinkler heads
    - Landscaping

## Phoenix Area Water Use Reduction Projects 2016

Location	Project	Cost	Gal/yr Reduced	Annual Savings
Deer Valley	Eliminate 7 Irrigation Sprinkler Heads	\$2,500	49,203	\$231
Sky Harbor	Replace 1 gal flush urinal with 1 pint flush	\$350	19,503	\$975
Engines	Low flow restroom faucets/Landscape	\$8,723	121,290	\$969



*Water Conservation Projects*

# Honeywell Aerospace: Energy Use Reduction

- **Energy Use Reduction Program**
  - Projects in 2016 targeted the following opportunities
    - Lighting and HVAC Upgrades
    - Cooling Plant and Compressed Air & Operation Upgrades

## Phoenix Area Energy Use Reduction Projects 2016

Location	Project	Cost	BBTU Reduced	Annual Savings
Deer Valley	HVAC, Lighting, Compressed Air, Operation	\$1,387,580	11.95	\$313,321
Sky Harbor	Cooling Plant Upgrades and Lighting	\$846,709	6.53	\$223,523
Tempe	Lighting Upgrade	\$9,000	0.01	\$2,359
Engines	Cooling Plant Upgrades and Lighting	\$150,504	8.79	\$255,416
Glendale	Retrofit Fluorescent Fixtures to LED	\$30,215	0.31	\$8,589
San Tan	HVAC and Lighting Upgrades	\$1,601	0.09	\$2,649

# Honeywell Aerospace: Recycling Effort

- **Non-hazardous Waste Reduction Program**
  - Measured by WDR = Waste Diversion Rate

## Phoenix Area Waste Diversion Rate 2016

Location	Landfill Waste (kg YTD)	Recycled Waste (kg YTD)	% WDR YTD	Cost Avoidance
Deer Valley	174,009	233,218	57%	\$ 8,574
Engines	835,231	377,290	31%	\$ 13,871
Glendale	105,208	14,294	12%	\$ 525
San Tan	18,228	5,192	22%	\$ 190
Sky Harbor	176,246	87,576	33%	\$ 3,219
Tempe	213,356	132,127	38%	\$ 4,857
Tucson	53,358	14,559	21%	\$ 535
Arizona Impact	1,583,460	864,256	35%	\$ 31,776



*Recycling and WDR Projects*

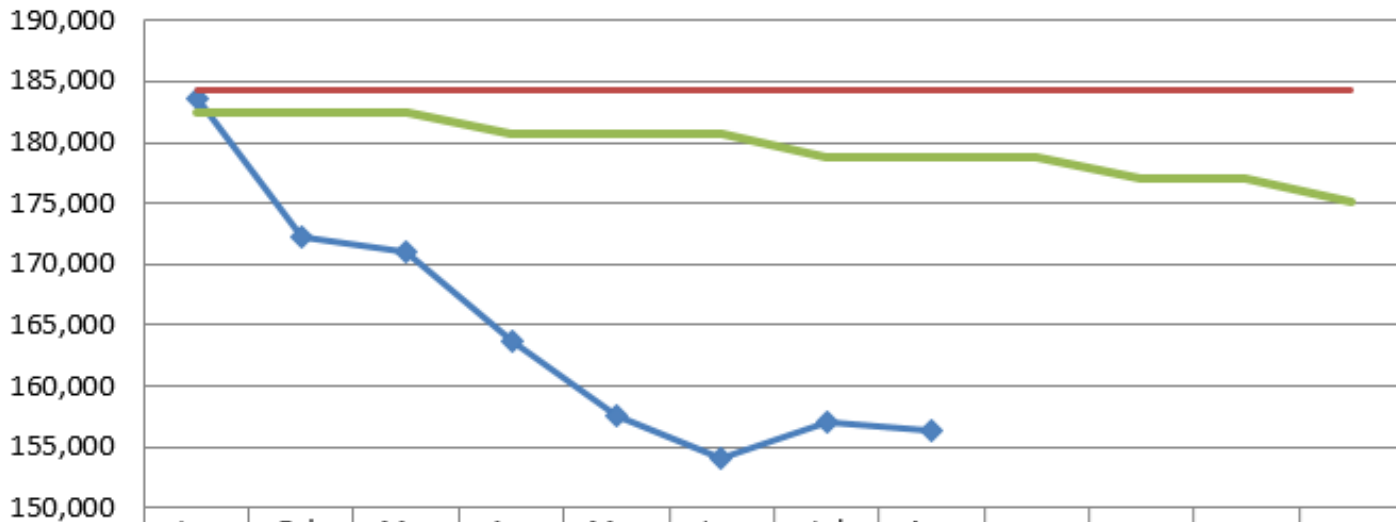


# AZ Hazardous Waste Reduction

- All Aerospace AZ sites decreased hazardous waste generation by approximately 27,000 Kg in 2016 (through August)



## Americas - Hazardous Waste (12-month rolling)



# Hazardous Waste Reduction Projects, AZ Sites

- **Hazardous Waste Reduction Program**

- Projects focused on:
  - Improved Wastewater Treatment vs Disposal
  - Better Solids Management Practices
  - Chemical Substitution

Site	Name of Project	Waste Stream	Proj. Red. (Kg)
Kingman	Brake Line Jet Wash Water	Waste water	4890
Sky Harbor	Aqueous solution with metals	Metal contaminated wastewater	1840
Tempe	Solvent Wipe Exception	Solvent Wipes	500
Phoenix Eng.	Parts Bag Oil Waste Conversion	preservative oil	6600
Tucson	Solvent Wipe Exception	Solvent Wipes	247

# Beneficial Reuse Programs



**AROMATIC THINNER BLEND**

PRODUCT CODE: \_\_\_\_\_

**PROPERTIES**

AROMATICS.....

KETONE.....

MISC SOLVENTS.....  
(Alcohol, Esters, Aliphatics)

CHLORINATED SOLVENT.....

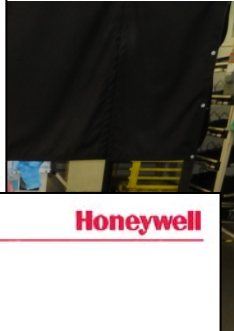
THF.....

COLOR.....

pH.....

ODOR.....  
(No Amine or sulfur odors)

MOISTURE & APPEARANCE.....  
CLEAR LIQUID FREE OF \_\_\_\_\_



**Honeywell**

Honeywell Aerospace  
Phoenix Repair & Overhaul  
1944 E Sky Harbor Circle N  
Phoenix, Arizona 85034

March 16, 2015

Ms. Colleen Murray  
ADEQ Hazardous and Solid Waste Division  
1110 West Washington Street  
Phoenix, Arizona 85007

**Subject: Solvent (acetone) Direct Re-use Request for**

Dear Ms. Murray:

I am writing to expand upon our earlier phone call. Honeywell is interested in initiating at the Sky Harbor Honeywell sites as well. The activity would include we Services (Henderson, Colorado) to send spent acetone for their program as paint gun cleaning material. Honeywell and communicated with Randall Matts with ADEQ and #1 - letter from ADEQ dated 6/2/14 regarding the use company. Honeywell is seeking a similar ADEQ approval.

Briefly, here is the entire process:

- Honeywell uses acetone for parts cleaning.
- The spent acetone would be placed in a drum at Veolia.
- Veolia will manage the spent acetone as a re-process (please see attachments #2, 3, & 4).

Honeywell is requesting a similar approval to previous Honeywell Aerospace Phoenix Repair & Overhaul facility Phoenix, Arizona. There are several benefits to initiating reducing the amount of acetone shipped for disposal, with

If you have any questions or would like to discuss the project at 602-365-4499, or contact me via email at mark.delgado@veolia.com

Respectfully,  
*Mark T. DelGaudio*  
Mark T. DelGaudio  
Sr. Environmental Engineer  
Honeywell Aerospace - Sky Harbor

**Filter used Stoddard**

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY  
1110 West Washington Street • Phoenix, Arizona 85007  
602.271.2300 • www.adeq.az.gov

June 2, 2014  
MPE: HW0014-111

Honeywell International, Inc.  
Attn: Tim Behrens  
1944 E. Sky Harbor Circle n/2101-2C  
Phoenix, Arizona 85043

Re: Response to request for guidance on the proposed use of high grade used solvent as an ingredient in the formulation of an industrial product.

Dear Mr. Behrens:

The following is a response to Honeywell International Inc.'s (Honeywell) request for written guidance regarding the use of high grade used solvent (Solvent) as an ingredient in the formulation of an industrial product produced by Solvent Recy-Clean, Inc (SRC).

SRC has identified a solvent blend currently being used at Honeywell which would meet the requirements of the Continuous Use Solvent Program previously approved by ADEQ for Solvent Recy-Clean.

Based on the above information, ADEQ agrees that the process described meets the requirements of 40 CFR 261.2(e)(1)(i), materials that are not a solid waste when they are recycled by being used or reused as ingredients in an industrial process to make a product, provided the materials are not being reclaimed. As such the Solvent may be utilized as proposed without being subjected to regulation as a solid waste or hazardous waste.

Please keep in mind that there may be additional factors that must be considered which require those making a legitimacy determination to look at the concentrations of the hazardous constituents found in the product made from hazardous secondary materials. If the above mentioned Solvent contains toxics "along for the ride" which are discarded in a final product, the hazardous secondary material is not being legitimately recycled, and therefore subject to full regulation.

If you have any further questions or concerns regarding the above information, please contact me at (602)-771-4849.

Sincerely,  
*Randall Matts*  
Randall Matts  
Inspection and Compliance Section Manager  
Waste Programs Division

Southern Regional Office  
400 West Congress Street • Suite 433 • Tucson, AZ 85701  
(520) 628-6733

Printed on recycled paper



## Reclaim Strategies – Some Key Points

- Beneficial Reuse
  - Preferred by customers
  - Material is managed as a product
  - Exempt from RCRA, ships on a Bill of Lading
  - In most cases, the customer is paid for the material
    - Transportation charges may result in a net charge to the customer for low value solvents
  - Sold at a fraction of virgin market pricing



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ers



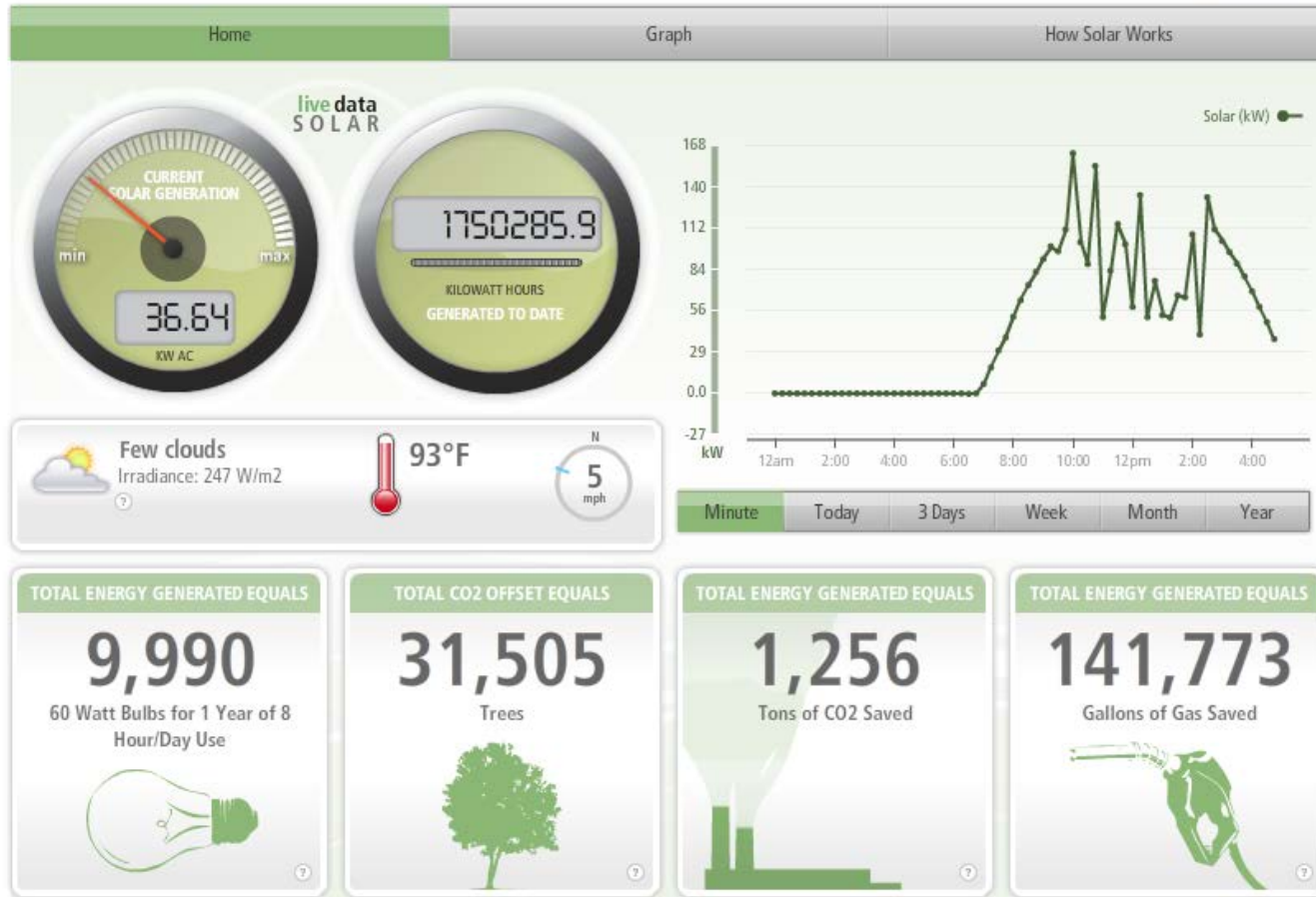
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**Engines: Stoddard Solvent Filtering & Sky Harbor: Solvent Recycling**

# Honeywell Aerospace: Renewable Energy

## Honeywell Aerospace: Solar

System Size: 201.6 kW DC  
Generating Since: September 7, 2011  
Last Updated: 4:45pm Oct 12, 2016



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# Education and Mentoring

- ✓ Mentoring other organizations regarding process improvements and pollution prevention approaches and techniques;
- ✓ Providing to the public an annual report documenting environmental performance;
- ✓ Membership and active participation in voluntary federal, state, or local environmental protection or reinvention programs;
- ✓ Creating or participating in programs that enhance environmental goal beyond regulatory requirement (Regulatory Engagement);

NA: Distribution of literature, guides, or reference material concerning environmental issues.

- ✓ **Continued:** Innovation for environmental improvement in industry or sector

# Mentoring

- Mentoring, Communication Opportunities:
  - **USEPA Lean in the Environment**
  - **Regional EPA Lean in the Environment**
  - **Apr 2016 and August 2016 VPPA Meetings**
  - **Maricopa County Air**
    - 2016 Clean Air Campaign Finalist (Valley Metro)
    - Monthly Meetings with Director for Clean Air Council
    - Jul 2016 - Presentations (Regulatory Engagement; Air Quality Permit Compliance Assistance)
  - **NAEM: Permit Review and Regulatory Engagement Strategies**
    - Apr 2016 - Ohio Boeing
  - **Standing Monthly Meetings with ADEQ**
    - Interacting and Partnering with Regulators
  - **Regulatory Panel: ESS Environmental Sustainability Summit**
  - **ADEQ/Intel/Phoenix Engines: Tour Waste Diversion Kaizen Event**
  - **ADEQ P2 Presentation**
  - **MWH HOS HSE Integration**

# Corporate Citizenship Report

## 2016 Corporate Citizenship

- Honeywell is committed to creating, supporting, and nurturing programs and initiatives that serve a global community and our hometowns too.
- With nearly 50% of its products linked to energy efficiency, Honeywell can help the world face its energy challenges.
- In fact, if Honeywell's existing technologies were widely adopted today, energy demand in the U.S. could be reduced by 20-25%.
- Now available for download on our external website at <http://citizenship.honeywell.com/>
- [http://citizenship.honeywell.com/wp-content/uploads/2016/08/Honeywell\\_Corporate\\_Citizenship\\_Report\\_2016-pdf\\_Edited\\_Aug-1.pdf](http://citizenship.honeywell.com/wp-content/uploads/2016/08/Honeywell_Corporate_Citizenship_Report_2016-pdf_Edited_Aug-1.pdf)

# VESP Participation

- ADEQ Voluntary Environmental Stewardship Program
- Honeywell Aerospace is a member of the Advisory Council for AZ VESP
  - All AZ sites accepted in the program at Platinum Level



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*Partnership with ADEQ*



# Beyond Requirements: Regulatory Engagement

- What does regulatory engagement aim to do?
  - Facilitate interaction with regulators outside of inspections.
  - Build trust between the regulator and the regulated entity.
  - Open lines of communication that benefit understanding of technical issues.
  - Help regulators better understand the regulated community.
- Who should lead it?
  - Greatest benefit is seen at the Site-Level – most common denominator to appropriately interact with regulators.
  - Also, support this at a corporate level- if you ask you sites to participate in a program then what will you do to support it?

Gregory Bopp; Aero Regional Leaders, Business Leaders, COEs												
NA												
NA												
Regulatory Engagement (RE) Activity												
RE Activity: Planned (P), Actual (A)												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	P	A	P	A	P	A	P	A	P	A	P	A
<b>Routine: 1 Point Value</b>												
<b>-Administrative</b>												
Complete training on RE Process 2016 in LMS or Aero Meeting	1	1										
Update RE SharePoint (contacts, agency, focus, opportunities, etc)	1	1										
Upload RE Plan to SharePoint after review with RL/BL			1	1								
All HSE Team takes: "What to Do During A Regulatory Inspection" training						0						
<b>-Non-inspection interaction</b>												
Informal meeting with regulators (not email)						1	3					
Permit review with regulator interaction (a contact to discuss key points/clarify)									2			
Other review with regulator (regulatory focus)				1		1	4					
<b>-Attending outreach opportunity with regulators</b>												
Stakeholder regulatory focus (outreach typically sponsored by regulator)		1	1			2	2	1	2			
Other stakeholder activity or outreach			1	1			8	2	1			
<b>-Participating in an HSE Alliance Meeting (recognized partner with regulators)</b>												
Alliance, Partnership, quasi-regulators, chamber or commerce, etc	1	1	1	1	0		1	2	5		1	2
												2

# Innovation for Environmental Improvement



- November 2016: Honeywell Aerospace is a finalist in the 29<sup>th</sup> Annual Clean Air Campaign in the category of Corporate Sustainability, more than 1500 employees



- October 2016: Honeywell received “Manufacturer of the Year – Excellence in Sustainability” Award

# Organizational Environmental Policies

- ✓ Evaluation of the environmental impacts of product(s) life cycle;
- ✓ An environmental management system and audit program;
- ✓ Implementation of sustainability practices.

NA: Instituting a policy requiring vendors to meet the member's environmental requirements

NA: Instituting and following a "green" purchasing policy

# Impact of HON Products on the Environment

- New product design process includes review of Environmental Impact (DfE)
  - Has the preliminary design minimized the use of hazardous materials?
  - Has the program addressed changes to environmental regulations that may affect the product?
- New Aircraft Fuel Burn/CO2 standard developed in the ICAO (International Civil Aviation Organization) CAEP/10 (Committee on Aviation Environmental Protection) Feb 2016 meeting
  - ICAO will increase stringency (reduce CO2 certification limit) and eventually force production cut-off on non-compliant aircraft
  - Expect in 2028 that new type certificate aircraft will be required to meet 5%-15% lower fuel consumption
- New product designs include requirements to reduce emissions and fuel efficiency (MTOM = maximum take off mass correlates to the CO2 Certification Metric)
  - Aircraft < 60 tons have less stringent CO2 standard ; timeline 2023-28
    - New Type Certificate (2020) – after 2020 new standards apply
    - New production (2023 – production changes, 2028 – all new production)
- Product roadmaps to incorporate the CO2 certification metric to ensure HON Engine & Systems performance meet future aircraft requirements.

# Environmental Management System

- Environmental Management System (HSEMS)
  - Our HSEMS broadly incorporates the conformance standards of ISO 14001 and OHSAS 18001 into a single system
  - Annual site-level audit and 3-yr Corporate Audit (covers environment):
    - Waste Management and Medical Waste
    - Container Management
    - Air Emissions
    - Wastewater and Stormwater
    - Spill Prevention
    - Drinking Water

HSEMS Maturity Progression (Self Assessment Tool) ***Scale is 0-4***							
Site	2010	2011	2012	2013	2014	2015	2016
Glendale	3.00	3.00	3.56	3.36	3.31	3.50	3.50
Deer Valley	2.54	2.68	3.32	3.04	3.31	3.38	3.42
Engines	2.92	3.16	3.24	3.40	3.31	3.35	3.00
Tempe	3.08	3.40	3.20	3.16	3.38	3.54	3.28
Tucson	2.77	3.00	2.96	2.92	3.31	3.38	2.57
Kingman	2.92	3.00	3.12	3.16	3.23	3.35	3.50
Sky Harbor	2.77	2.84	3.32	3.32	3.46	3.62	3.57

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# Environmental Management System- Aerospace Certification Letter from DNV

DNV GL - Business Assurance USA, Inc.  
1400 Ravello Drive  
Katy, TX 77449

Tel: (281) 396-1000

9/9/2014

Honeywell Aerospace  
1944 E. Sky Harbor Circle N; MS: 2101-2C  
Phoenix, AZ 85034

**RE: Management System Conformance**  
**DNV GL File #: PRJ-510731**

Dear: Gregory A. Bopp,

Based on the results of the remote document review performed by Lead Assessor Weidong Yang during the week of August 18, 2014, Honeywell Aerospace Health, Safety and Environmental Management System (HSEMS) documentation meets the intent and conforms to the requirements of ISO 14001:2004 / OHSAS 18001:2007 standards.

If you have any questions or require additional information, please let me know.

Sincerely,  
for DNV GL Business Assurance USA, Inc.

## WDR Cost Avoidance 2016 YTD

- 51 Aero Sites Currently Participating in WDR reporting
- 3,825,000 kg's of recycled material reported in ETS
- Converts to 4262 tons
- Average cost to landfill a ton of waste is \$33/ton
- Cost avoidance to Honeywell Aero YTD 2016 is \$140,641
- Monthly average savings of \$17,580



- **In addition, much of the recycled waste results in rebates and positive recycling revenue returned to the sites**

# Regulatory Status and Compliance History

- Regulatory Compliance
  - Federal (NESHAPs)
  - State (ADEQ: Hazardous Waste, UST, Air)
  - County (Air, Food Safety, Trip Reduction, Ind. Commission, Facilities)
  - City (City of Phoenix, Wastewater, Stormwater, Fire Department)
  - Local (GRIC)
- Compliance Status- Regulatory Inspections w/o Findings
  - 71 Regulatory Inspections in past 12 months, ~17% of which resulted in “findings” and 1 in NOV’s issued
    - Significant improvements from last year in NOV’s (from 3 to 1)
    - *No issues affecting Honeywell Aerospace Compliance with AESA requirements*

Location ID	Event Date	Description
Tucson (AZ10)	3/15/2016	The fire dept will be compiling any observation information and forwarding the report to the site in the next couple of days. Preliminary findings fall into one of four categories, 1. Broken or missing ceiling tiles, 2. Dislodged or missing sprinkler head rings, 3. Daisy Chained power strips or extension cord use, 4. Broken or missing electrical plug covers.



# Questions?