



## *Integrated Work Management System*

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Todd Allen  
Tririga Breakouts  
November 30, 2017



Sandia National Laboratories is a multimission laboratory managed and operated by National Technology and Engineering Solutions of Sandia, LLC, a wholly owned subsidiary of Honeywell International, Inc., for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-NA0003525.

# SNL Primary Sites

**Albuquerque, New Mexico**



**Livermore, California**



**Kauai, Hawaii**



**Tonopah, Nevada**



# SNL Mission Areas

- Nuclear Weapons



## About Nuclear Weapons

Since 1949, Sandia's scientists and engineers have conducted breakthrough research in weaponization.

## Safety & Security

Safe and secure nuclear weapons are of paramount importance in a changing global threat environment.

## Science & Technology

Sandia provides the science and engineering to help maintain and certify the nation's nuclear stockpile.

# SNL Mission Areas

- Defense Systems & Assessments



## About Defense Systems & Assessments

Our engineering, science, and technology expertise supports soldiers on the battlefield.

## Program Areas

Our multi-faceted research detects and defends against threats to the United States.

## Accomplishments

Scientists and engineers continually deliver results with significant impacts on national security.

# SNL Mission Areas

- Energy & Climate



## Stationary Power

Focus on safety, security, and resilience of energy infrastructure & assets, high-efficiency conversion of low and zero-carbon energy sources to electricity, and the back end of the nuclear fuel cycle.

## Climate & Earth Systems

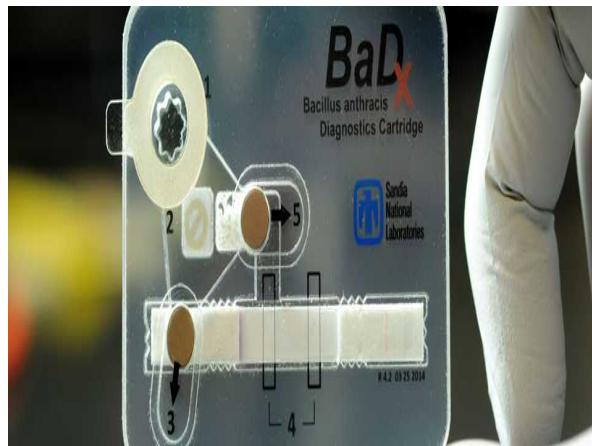
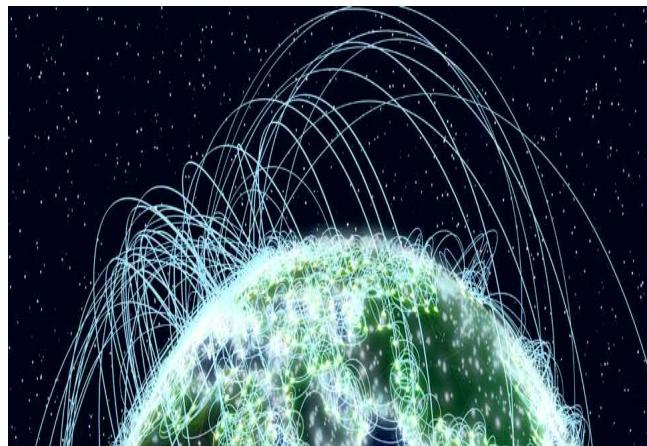
Address challenges associated with the understanding and predictability of climate evolution, reduce the amount of energy required to produce/transport safe supplies of water, reduce impact of energy production on scarce water resources, and develop/produce subsurface energy sources with reduced environmental impact.

## Science & Technology

Supporting the scientific base for competencies essential to Sandia missions. The DOE Office of Science is the single largest supporter of basic research in the physical sciences in the U.S., providing more than 40 percent of total funding in this area

# SNL Mission Areas

- Global Security



## Reducing cyber threats

Tools and techniques to improve cyber defense and protect networks and data

## Reducing global chemical and biological dangers

Technologies for rapid detection and characterization of chemical and biological threats

## Reducing global nuclear dangers

Unique technical and policy solutions to reduce global nuclear and radiological dangers

# IBM TRIRIGA Benefits

- Create a single reliable source for facility data
- Improve transparency with oversight organizations
- Streamline Facility business processes with a single, integrated management tool
- Give customers simple tools and real-time information
- Replace homegrown tools/applications
- Integrate with other systems
- Ability to build customized functionality
- Provide source documentation for internal and external audits
- Tririga export functionality reduces the need for user reports

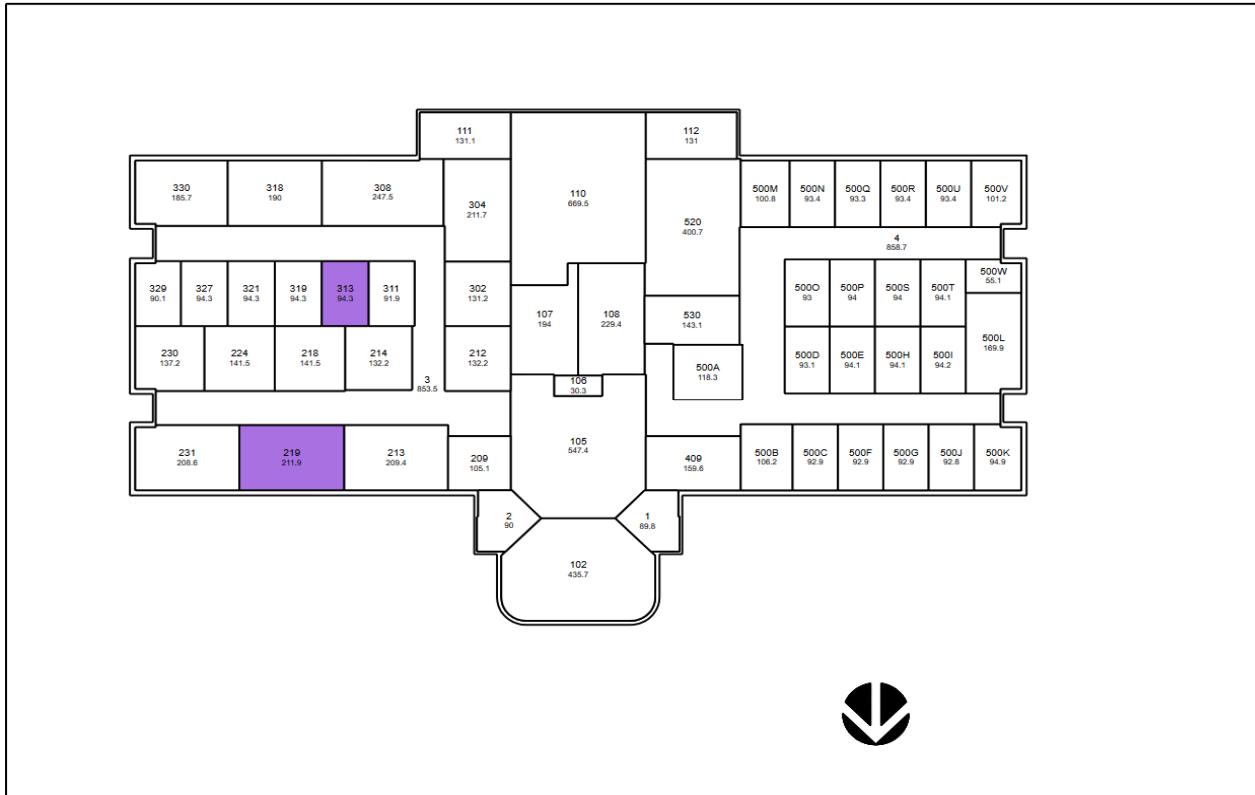
# IBM Tririga Portfolio

- Locations
  - 4 Sites
  - 1,016 Buildings
  - 1,509 Structures
  - 2,379 Floors
  - 25,106 Spaces
- Organizations
  - 13 Division Organizations
  - 1,164 Department Organizations
- People
  - 27,653 Members of the Workforce
- Assets
  - 270 Electrical Meters

# IBM Tririga Space

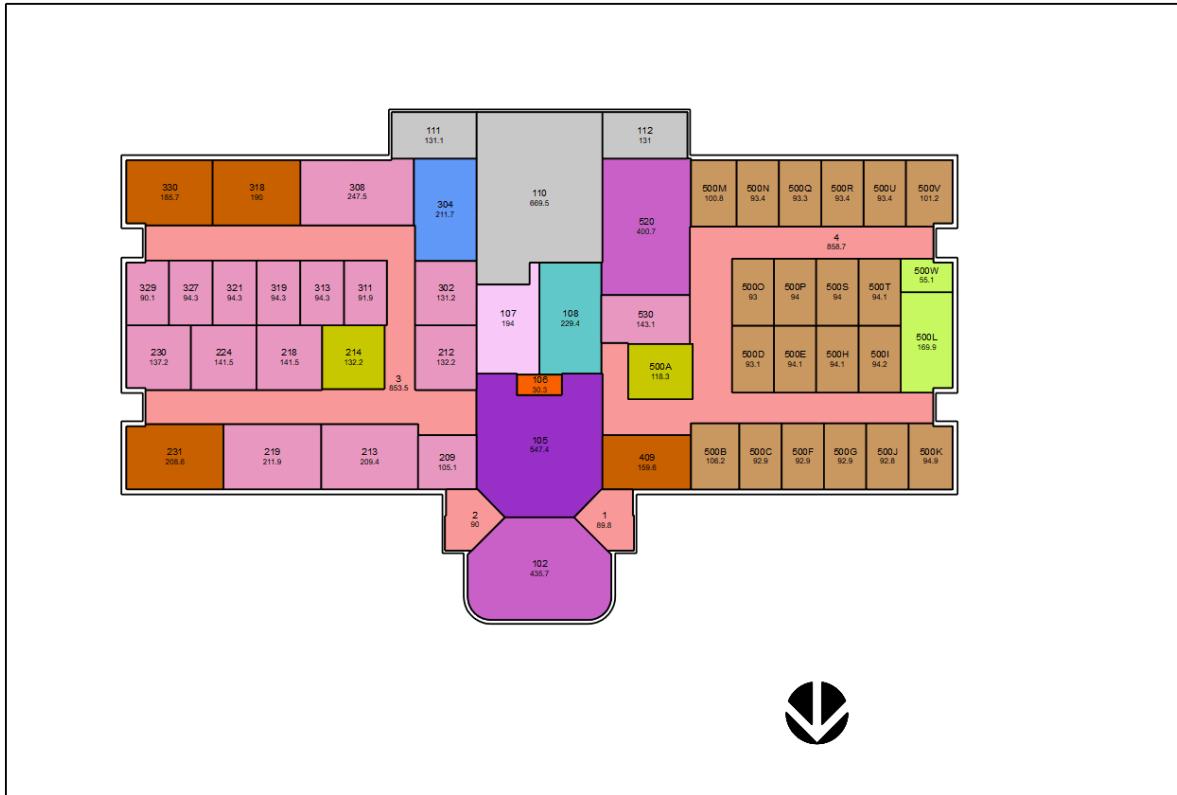
- Space
  - Follow BOMA standards for measuring space (floorplans)
  - 19,099 Organization Space Allocations
  - 36 Space Type Classifications
  - Space Occupancy Status & Space Utilization (office type space)
  - Workforce Primary Location (integration with PeopleSoft)
  - Space Audit using Cost Pools
  - Automated process for requesting/modifying/returning space
  - Graphical Queries

# Graphical Queries – Vacant Space



Vacant Offices			
Occupancy Status	Total Vacancies		Area
Vacant	2	306.2	
Total	2	306.2	

# Graphical Query – Space Type



Space Type	
Name	Area
Administrative	224.9
Break Room	211.7
Conference Room	836.4
Corridor	1891.9
Equipment Room	931.6
General Office-Enclosed	2160
General Office-Open	1898.8
Janitor Closet	30.3
Lobby	547.4
Manager Office	743.9
Mens Restroom	229.4
Secretarial Office	250.4
Womens Restroom	194
Total	10150.9

# Graphical Query – Occupancy Status for Offices



Occupancy Status for Offices		
Name	Count	Area
Occupied	34	3836.7
Over Allocated	2	284
Partially Occupied	4	626.2
Vacant	2	306.2
Total	42	5053.2

# IBM Tririga Capital Projects

- Projects
  - 59,504 Projects (FY2000 – Current)
  - ~3,500 Per Year
  - Search Capabilities
  - Project Information
  - Project Team Assignments
  - Project Financial Data
  - Project Maximo Service Request Number
  - Financial Change Order Request
  - Excavation & Penetration Permit Tracking
  - Reporting

# Project Search Capabilities

**Service Order Search**

Service Order Search:

General System Debug Workflow Instance Associations Clear x

**Search And Filter**

Service Order Number <input type="text"/>	SPO Contract Numbers <input type="text"/>	Managing Org <input type="text"/>
Service Order Name <input type="text"/>	SPO Contract Name <input type="text"/>	Project Status <input type="text"/>
Project Class Category <input type="text"/>	BPA Contract Numbers <input type="text"/>	Customer Name <input type="text"/>
Project Class Code <input type="text"/>	BPA Contract Name <input type="text"/>	Charging Project <input type="text"/>
Maximo Ticket # <input type="text"/>	Project Manager <input type="text"/>	Building Number <input type="text"/>
Work Order # <input type="text"/>	Tech Area <input type="text"/>	Ops Tech <input type="text"/>

**Service Orders**

1 / 5951 Export 59504 total found [Apply Filters](#) [Clear Filters](#) Show: 10

<input type="checkbox"/> Service Order #	Project Code	Project Status Date	Service Order Name	Authorized	Costs	Project Manager	Project Status	Project Schedule Status
<input type="checkbox"/> 52470	MAINTENANCE	Contains	RE-KEY LOCKS/KEYS IN 821/2115 & 821/2003	\$2,000.00	\$124.15	<input type="checkbox"/> CLOSED	<input type="checkbox"/> PROJECT CLOSED	
<input type="checkbox"/> 53516	FACILITIES EXPRESS	Contains	ADD START/STOP BAR TO CONVEYOR SYSTEM	\$15,000.00	\$10,533.06	<input type="checkbox"/> CLOSED	<input type="checkbox"/> PROJECT CLOSED	
<input type="checkbox"/> 40499	FACILITIES EXPRESS	Contains	INSTALL 2 FANCOIL UNITS	\$70,000.00	\$47,195.28	<input type="checkbox"/> CLOSED	<input type="checkbox"/> PROJECT CLOSED	
<input type="checkbox"/> 54891	MAINTENANCE	Contains	BUILDING 958 SAFETY SHOWER NOT FLOWING ENOUGH WATER	\$2,000.00	\$122.43	<input type="checkbox"/> CLOSED	<input type="checkbox"/> PROJECT CLOSED	
<input type="checkbox"/> 42063	FACILITIES EXPRESS	Contains	INSTALL GROUND TO STATIC-FREE WORK BENCH	\$2,000.00	\$715.47	<input type="checkbox"/> CLOSED	<input type="checkbox"/> PROJECT CLOSED	
<input type="checkbox"/> 56072	MAINTENANCE	Contains	REPLACE A UNICAN 1000 LOCK ON DOOR	\$2,000.00	\$471.99	<input type="checkbox"/> CLOSED	<input type="checkbox"/> PROJECT CLOSED	
<input type="checkbox"/> 49714	OPEN SERVICE	Contains	GENERAL SERVICE AND MODIFICATIONS	\$10,000.00	\$9,926.51	<input type="checkbox"/> CLOSED	<input type="checkbox"/> PROJECT CLOSED	
<input type="checkbox"/> 54472	MAINTENANCE	Contains	UNCRATE TWO BOXES	\$500.00	\$61.22	<input type="checkbox"/> CLOSED	<input type="checkbox"/> PROJECT CLOSED	
<input type="checkbox"/> 53596	FACILITIES EXPRESS	Contains	PAINT WALL/TOUCH UP AROUND NEW PRINT BOARD & FILL IN HOLES WHERE OLD WHTBRD WAS	\$500.00	\$147.11	<input type="checkbox"/> CLOSED	<input type="checkbox"/> PROJECT CLOSED	
<input type="checkbox"/> 51927	MAINTENANCE	Contains	INSTALL FULL SPECTRUM LIGHT BULBS	\$150.00	\$28.49	<input type="checkbox"/> CLOSED	<input type="checkbox"/> PROJECT CLOSED	

# Project Information

Service Order: 191098

Project Info Teams Tracking Commitments Reports Change Order System Workflow Instance Associations Add To Bookmarks Print Help

**(Required):**

**Service Order / Task Information**

**Funding**

Authorized	\$439,000.00	Costs	\$325,899.95	Baseline	\$0.00
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**Service Order Number** 191098 **Service Order Name** BLDG. 9956/9950 EXTEND FIBER COMMUNICATION

**Managing Org** 04824 **Project Class Category** FACILITIES PROJECTS **Project Class Code** IGPP

**Project Status** Closed **Status Date** 04/27/2017 **Project Manager**

**Project Schedule Status** PROJECT CLOSED **Project Schedule Status Date** 25

**Building Information**

**Export** 1 total found **Show:** 10

Building Number	Ops Tech	Ops Tech Phone	Ops Tech Email
9956			

**Customer Information**

**Export** 1 total found **Show:** 10

Customer Name	Department	Customer Phone	Customer Email	Agreement Num	Charging Project	Amount
				191098	190387.03	\$439,000.00

**SPOs** Maximo Tickets Excavation & Penetration Permits

**SPOs**

**Export** 5 total found **Apply Filters** **Clear Filters** **Show:** 10

PO Number	Vendor Name	POP Date	Order Date	Order Amount	Amount Billed	PO Status	RFI?	Submittal?
1710725		01/31/2017	07/27/2016	\$5,439.96	\$2,099.63	CLOSED		
1670543			03/23/2016	\$230,368.00	\$230,368.00	Closed		
1670543			03/23/2016	\$57,978.00	\$57,978.00	Closed		
1663871		06/30/2016	03/03/2016	\$6,319.28	\$4,677.16	CLOSED		
1661358		07/15/2016	02/24/2016	\$9,020.36	\$3,806.22	Closed		

**Save** **Save & Close** **More** **x**

# Project Team Assignments

Service Order: 126025

Add To Bookmarks Print Help

Project Info Teams Tracking Commitments Dig Permits Reports Change Order System Workflow Instance A [ ] Save Save & Close More x

(Team Members):

### Team Members

Export 5 total found Apply Filters Clear Filters Show: 10

<input type="checkbox"/> Member Role	Member Name	Work Phone	Email	Organization Name
<input type="checkbox"/> ADMINCLERK	Contains	Contains	Contains	Contains 106981 - FEM&IS Administrative Support(002733)
<input type="checkbox"/> BUILDING MANAGER				04826 - Customer Operations North(000512)
<input type="checkbox"/> CME				04826 - Customer Operations North(000512)
<input type="checkbox"/> COORDINATOR				
<input type="checkbox"/> PROJECT MANAGER				

Save Save & Close More x

# Project Tracking Notes

Service Order: 126025

Add To Bookmarks Print Help

Project Info Teams **Tracking** Commitments Dig Permits Reports Change Order System Workflow Instance A ▶ ▾ Save Save & Close More x

**Tracking** Add | Delete Del

Export 5 total found Apply Filters Clear Filters Show: 10 ▾

<input type="checkbox"/>	<b>!</b> Status	Date	\$ Change	Remarks	Created By
<input type="checkbox"/>	Contains CHANGE ORDER (TO ASO)	After 07/14/2008	Equals -725.91	MP: DECREASE SO FROM \$7,650 TO \$6,924.09	Contains
<input type="checkbox"/>	CLOSE-OUT NOTICE RECEIVED	05/28/2008	0	ETM: B&D REL#517 PER R. JUSTUS	
<input type="checkbox"/>	CHANGE ORDER (TO ASO)	04/04/2008	2,650.00	MP: INCR. SO FROM \$5,000 TO \$7,650	
<input type="checkbox"/>	RELEASE NUMBER ISSUED	02/18/2008	0	RAF: 2/18/08, NEW RELEASE ISSUED	
<input type="checkbox"/>	SERVICE ORDER BEGAN	02/15/2008	0	2/15/2008	

# Project Cost and Commitments



Service Order: 126025

Project Info Teams Tracking **Commitments** Reports Change Order System Workflow Instance Associations

Add To Bookmarks Print Help

Save Save & Close More x

**Commitment**  
Authorized \$6,924.10      Allocated Total 0.00      Difference \$6,924.10

**Tasks**

Export 50 total found **Apply Filters** **Clear Filters**

Task	Name	Baseline Start	Baseline End	Allocated	Costs	Committed	Show: 100	ID	Contains
126025	RUN SEVEN NEW 1/4" OD X 3/16" ID TEFILON SAMPLE TUBES FROM MDA-K AND MDA-Q TO EXISTING SAMPLE POINTS AT VIIS AND E500 IMPLANTERS	After	After	Equals	Equals	6,924.10	6,924.10	126025	
1	PROJECT DEVELOPMENT			0.00	0.00	0.00	0.00	126025.1	
1.1	A/E PROJ DEVELOPMENT			0.00	0.00	0.00	0.00	126025.1.1	
1.2	MANAGEMENT			0.00	0.00	0.00	0.00	126025.1.2	
1.2.1	PROJECT MANAGMENT			0.00	0.00	0.00	0.00	126025.1.2.1	
1.2.2	DESIGN MANAGEMENT			0.00	0.00	0.00	0.00	126025.1.2.2	
1.3	DESIGN CRITERIA/SOW			0.00	0.00	0.00	0.00	126025.1.3	
1.4	CONCEPT DESIGN RPT			0.00	0.00	0.00	0.00	126025.1.4	
1.5	ESRH SERVICES			0.00	0.00	0.00	0.00	126025.1.5	
2	PRELIMINARY DESIGN			0.00	0.00	0.00	0.00	126025.2	
2.1	A/E PRELIM DESIGN			0.00	0.00	0.00	0.00	126025.2.1	
2.2	MGT PRELIM DESIGN			0.00	0.00	0.00	0.00	126025.2.2	
2.2.1	PROJECT MANAGMENT			0.00	0.00	0.00	0.00	126025.2.2.1	
2.2.2	DESIGN MANAGEMENT			0.00	0.00	0.00	0.00	126025.2.2.2	
2.3	ESRH SERVICES			0.00	0.00	0.00	0.00	126025.2.3	
3	FINAL DESIGN			0.00	0.00	0.00	0.00	126025.3	
3.1	A/E FINAL DESIGN			0.00	0.00	0.00	0.00	126025.3.1	
3.2	MGT FOR FINAL DESIGN			0.00	0.00	0.00	0.00	126025.3.2	
3.2.1	PROJECT MANAGEMENT			0.00	0.00	0.00	0.00	126025.3.2.1	
3.2.2	DESIGN MANAGEMENT			0.00	0.00	0.00	0.00	126025.3.2.2	
3.3	ESRH SERVICES			0.00	0.00	0.00	0.00	126025.3.3	
4	CONSTRUCTION			0.00	6,924.10	6,924.10	6,924.10	126025.4	
4.1	CONSTRUCT CONTRACT			0.00	6,694.03	6,694.03	6,694.03	126025.4.1	
4.1.1	UTILITIES/LAND			0.00	0.00	0.00	0.00	126025.4.1.1	
4.1.2	BUILDINGS			0.00	6,694.03	6,694.03	6,694.03	126025.4.1.2	
4.1.3	DEMOLITION			0.00	0.00	0.00	0.00	126025.4.1.3	
4.2	EQUIPMENT			0.00	0.00	0.00	0.00	126025.4.2	
4.2.1	SPECIAL EQUIPMENT			0.00	0.00	0.00	0.00	126025.4.2.1	
4.2.2	FURNITURE			0.00	0.00	0.00	0.00	126025.4.2.2	
4.2.3	SANDIA FURN EQUIP			0.00	0.00	0.00	0.00	126025.4.2.3	
4.2.4	SFE-COMMUNICATIONS			0.00	0.00	0.00	0.00	126025.4.2.4	
4.2.5	SFE-SECURITY			0.00	0.00	0.00	0.00	126025.4.2.5	
4.2.6	SFE-CONTROLS			0.00	0.00	0.00	0.00	126025.4.2.6	
4.3	INSPECT & ACCEPT			0.00	230.07	230.07	230.07	126025.4.3	
4.3.1	INSPECTION			0.00	230.07	230.07	230.07	126025.4.3.1	
4.3.2	COMMISSIONING			0.00	0.00	0.00	0.00	126025.4.3.2	
4.3.3	ESCORTS/SECURITY			0.00	0.00	0.00	0.00	126025.4.3.3	
4.3.4	TITLE III SERVICES			0.00	0.00	0.00	0.00	126025.4.3.4	
4.3.5	TESTING			0.00	0.00	0.00	0.00	126025.4.3.5	
4.3.6	OBM			0.00	0.00	0.00	0.00	126025.4.3.6	
4.4	MGT FOR CONSTRUCTION			0.00	0.00	0.00	0.00	126025.4.4	
4.4.1	PROJECT MANAGEMENT			0.00	0.00	0.00	0.00	126025.4.4.1	
4.4.2	CONSTRUCTION MGT			0.00	0.00	0.00	0.00	126025.4.4.2	
4.5	ESRH SERVICES			0.00	0.00	0.00	0.00	126025.4.5	
5	CLOSEOUT			0.00	0.00	0.00	0.00	126025.5	
5.1	FIT-UP & MOVE IN			0.00	0.00	0.00	0.00	126025.5.1	
5.2	MANAGEMENT-CLOSEOUT			0.00	0.00	0.00	0.00	126025.5.2	
5.3	OBM SERVICES			0.00	0.00	0.00	0.00	126025.5.3	
6	CONTINGENCY			0.00	0.00	0.00	0.00	126025.6	
6.2	EXPENSE CONTINGENCY			0.00	0.00	0.00	0.00	126025.6.2	

# IBM Tririga Sustainability

- Electricity Utility Meter Readings (assets)
  - Apportioning Usage to Location by %
  - 13,691 Apportioning Records from 270 SNL NM Electrical Meters
  - Electricity Utility Usage Invoicing

Utility Invoice Line Item: 1028480

General System Workflow Instance Reports Associations Audit Actions

(Required): Utility Invoice Line Item Details.

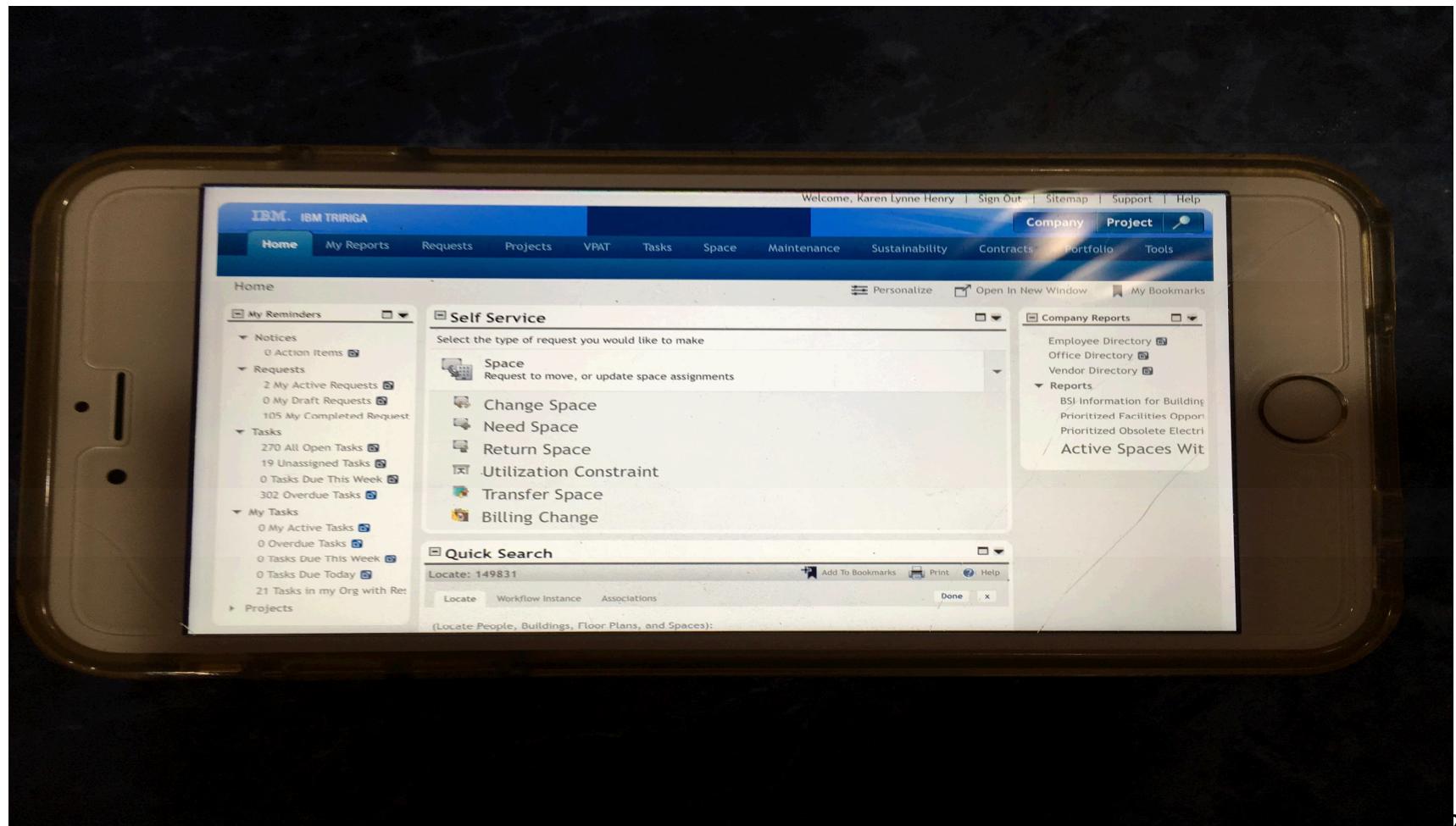
**General**

Name 823-CH-Oct-17	Status Active												
<b>Units</b>													
Currency US Dollars	* Quantity UOM kilowatt-hours												
Currency Exchange Date 10/02/2017 07:06:44													
<b>Details</b>													
* Line Number 44	* Date 10/01/2017												
* Utility Bill Type Energy	Meter Name 823-CH												
* Energy Type Electricity	Energy Source Scope 2 (Indirect)												
Include In Energy Use? <input checked="" type="checkbox"/>	Cooling Degree Days 0												
Renewable Source? <input type="checkbox"/>	Heating Degree Days 0												
Billing Period September - 2017	Peak Load 0 kilowatt-hours												
From Date 09/01/2017	To Date 09/30/2017												
Current Reading 11780762.295 kilowatt-hours	Previous Reading 11737042.008 kilowatt-hours												
<b>Meter Service Allocations</b>													
Export 4 total found <a href="#">Apply Filters</a> <a href="#">Clear Filters</a> <table border="1"> <thead> <tr> <th>Service Location</th> <th>Service Allocation Percent</th> </tr> </thead> <tbody> <tr> <td>Contains</td> <td>56.7 percent</td> </tr> <tr> <td>821</td> <td>29 percent</td> </tr> <tr> <td>823</td> <td>5.5 percent</td> </tr> <tr> <td>825</td> <td>8.8 percent</td> </tr> <tr> <td>869</td> <td>100 percent</td> </tr> </tbody> </table>		Service Location	Service Allocation Percent	Contains	56.7 percent	821	29 percent	823	5.5 percent	825	8.8 percent	869	100 percent
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# IBM Tririga Real Estate

- Real Estate Leases & USAF Land Use Permits
  - Real Estate Leases by Type & Category
  - Critical Dates
  - Reminders
  - Approvals
  - Document Management
  - Version History
  - Payment Schedules
  - Terms/Options
  - Document Routing (Sandia, NNSA, DOE)
  - Notifications

# Tririga on any Sandia Mobile Device



# Other Sandia Uses of Tririga Data



- Analytics for Sandia Knowledge (ASK) – Rich visualizations of corporate data, trends and workforce information, ASK unlocks insights about Sandia to help management make more informed decisions.
- Corporate Maps – Sandia site maps that provides the ability to search for a building, person, room, and gate.
- Customer Satisfaction Surveys
- Corporate Metric Reporting

# Questions ?