

Performance of the Chemical Facility Anti-Terrorism Standards Help Desk



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Data System Sciences and Engineering
Center for Infrastructure Security Analysis

**Performance of the
Chemical Facility Anti-Terrorism Standards Help Desk**

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August 14, 2019

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ACRONYMS

CFATS	Chemical Facility Anti-Terrorism Standards
CISA	Cybersecurity and Infrastructure Security Agency (DHS)
COI	chemical of interest
CSAT	Chemical Security Assessment Tool
CSC	Call Service Center
CVI	Chemical-terrorism Vulnerability Information
DHS	U.S. Department of Homeland Security
ISCD	Infrastructure Security Compliance Division (DHS)
IT	information technology
IVR	Interactive Voice Response
ORNL	Oak Ridge National Laboratory
SME	Subject Matter Expert
SVA	Site Vulnerability Assessment
SSP	Site Security Plan

ABSTRACT

The Chemical Facility Anti-Terrorism Standards (CFATS) Help Desk, managed by the Oak Ridge National Laboratory (ORNL), provides user assistance using a multi-tiered structure in support of the U.S. Department of Homeland Security (DHS) CFATS program. The CFATS Help Desk consists of a Call Service Center (CSC), managed by ORNL, and a group of ORNL Subject Matter Experts (SMEs). The CSC, operated by an ORNL subcontractor, resolves front-line issues (called “Tier 1”) or escalates more technical issues (called “Tier 2”) to the ORNL SMEs. Issues resolvable only by DHS (called “Tier 3”) are escalated to DHS. The CFATS Help Desk has captured and reported on usage data since 2007 and has implemented measures to improve user experience. This paper describes how the CFATS Help Desk provides support and how usage statistics are presented.

1. INTRODUCTION

A help desk is frequently the place where users can get questions answered, resolve issues, and obtain technical assistance in troubleshooting problems related to computer systems. Help desks offer support and technical expertise to specific user bases wherein the ability to quantify support trends over time is important. The Oak Ridge National Laboratory (ORNL) Chemical Facility Anti-Terrorism Standards (CFATS) Help Desk has addressed thousands of inquiries for support since its inception in 2007. This paper describes how the CFATS Help Desk provides support and how usage statistics are presented.

In October 2006, the President signed into effect the *Department of Homeland Security Appropriations Act of 2007*. Through this action, the U.S. Department of Homeland Security (DHS) was granted authority to regulate the security of U.S. chemical facilities deemed high risk. In April 2007, DHS published a notice in the *Federal Register* recommending chemical facilities potentially at risk, as determined by the CFATS program, register for access to the Chemical Security Assessment Tool (CSAT).

CFATS became the Nation's first regulatory program to direct attention to security at high-risk chemical facilities. The CFATS program is managed by the DHS Cybersecurity and Infrastructure Security Agency (CISA). CISA staff work with at-risk facilities across the nation to ensure security measures are in place to reduce the risks for certain chemicals of interest (COIs) and to prevent facilities from being exploited by terrorist attack. The ORNL CFATS Help Desk operations are an essential element in the program. This is especially true as ORNL has been a significant contributor over the years to the development of CSAT.

2. CFATS HELP DESK OPERATIONS

The ORNL CFATS Help Desk operation began in April 2007 in support of the DHS CFATS program and CSAT. The CFATS Help Desk provides the following four support functions: 1) technical support for CSAT tools, including the CSAT 2.0 Top-Screen, Site Vulnerability Assessment (SVA), Site Security Plan (SSP), and Chemical-terrorism Vulnerability Information (CVI) systems; 2) user and facility registration; 3) user support with connectivity and resolution of security issues; and 4) user support for Policy-related issues.

The CFATS Help Desk is comprised of two components, 1) a Call Service Center (CSC) and 2) a group of ORNL Subject Matter Experts (SMEs). Statistics captured for these two components show that a tiered support structure is an effective way to resolve CSAT issues. The CFATS Help Desk collects, verifies, and documents all user information, interaction, and problem resolution in the commercial off-the-shelf software package, Salesforce.

3. TIER 1 SUPPORT

The contract for the CSC (“Tier 1 support”) was awarded through a competitive procurement, and the CSC agents are all subcontractors. The CSC provides front-line telephone and email support for the CFATS Help Desk and emerging initiatives. The CSC is primarily responsible for case generation, user interaction documentation, and case resolution for routine IT and policy-related inquiries.

As Tier 1 support, the CSC agents do not have access to the CSAT systems, nor do they have access to the CSAT survey data. The CSC is held to requirement and performance metrics defined in the contract.

Case routing within the CFATS Help Desk is depicted in Figure 1.

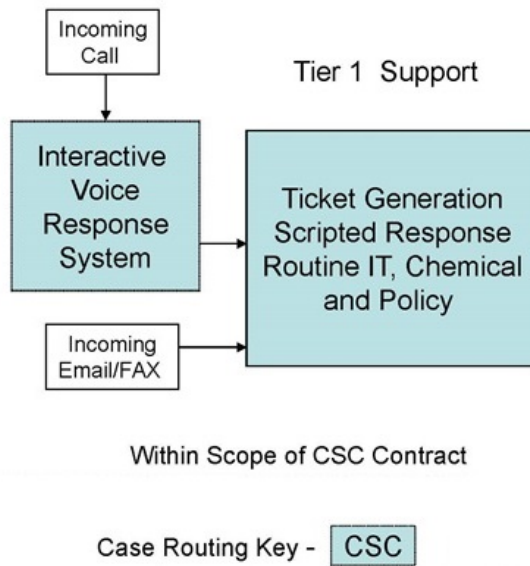


Figure 1. Tier 1 routing at the CSC.

4. TIER 2 AND TIER 3 SUPPORT

The CSC escalates cases that are not resolvable at the Tier 1 level to Tier 2 and Tier 3 support. Support provided by the ORNL Help Desk SMEs is referred to as “Tier 2 support.” The ORNL SMEs possess in-depth knowledge of the CSAT processes, systems, and underlying data. They provide advanced support for issues regarding user management, IT, and policy. They work directly with CSAT users in resolving complex user and system issues. Any unresolved policy and chemical issues not resolvable at the Tier 2 level are reviewed further, and then escalated to DHS for “Tier 3 support.”

Case escalation to Tiers 2 and 3 is depicted in Figure 2.

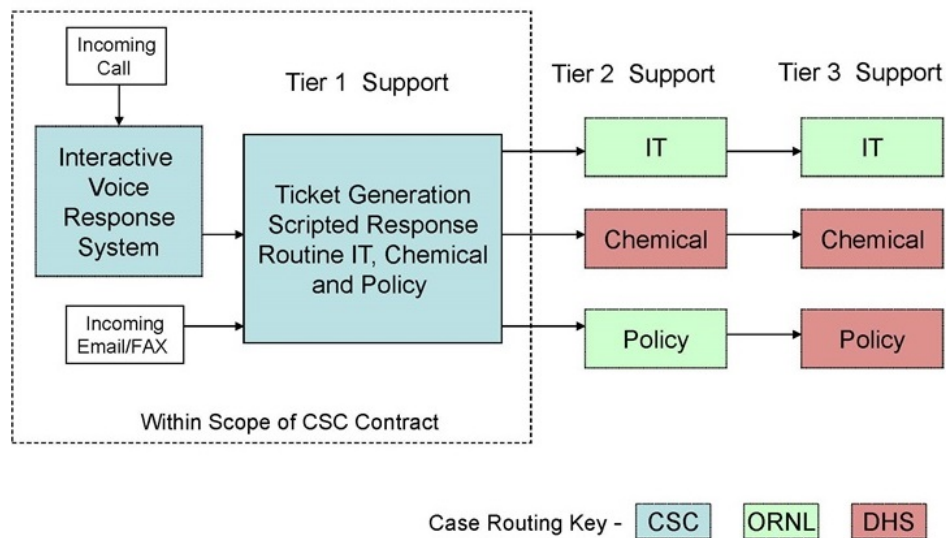


Figure 2. Tier 1 to Tier 2 and Tier 3 support.

5. CFATS HELP DESK ACTIVITY

An important feature of the CFATS Help Desk is the ability to gather and report a wide range of activity statistics. Much of the CFATS Help Desk activity has been captured and recorded from the beginning. Among the detailed information for all CFATS Help Desk activity are data captured from the CSC, the DHS Infrastructure Security Compliance Division (ISCD), and the CSAT Portals, which are hosted at ORNL.

Data captured by the CSC includes, but is not limited to, call statistics, case activity, Interactive Voice Response (IVR) activity, Customer Service Survey results, agent performance, and usage statistics. The CSC produces reports parsing this data by day, week, month, and year.

Data captured in the CSC reports allows the CFATS Help Desk to measure and report on case load and trends in several ways. Case resolution is calculated by year, resolution provider, and subject category. Resolutions are further broken down by specific case reason and tier level resolved.

Information captured from the ISCD and CSAT Portals reflects CFATS Help Desk activity performed by the ORNL SMEs. This information pertains to the operational activities relating to CSAT users and chemical facilities. CFATS Help Desk reports are compiled and generated for daily, monthly, yearly, and *ad hoc* inquiries made by DHS or other management. Figures 3 through 6 are examples of reports generated from activity at both the CSC and ORNL SME Help Desk components.

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 Projected	2019 Actual	Total
Chemical CSC	1007	1079	351	285	87	32	3	2	0	0	0	0	0	0	2846
Chemical DHS	45	33	17	22	7	8	40	17	10	10	0	0	0	0	209
Policy CSC	4807	12920	4915	5819	3583	4143	7172	6646	5286	5149	10967	2936	2260	1130	75473
Policy ORNL							379	853	1264	1417	3028	1395	736	368	8704
Policy DHS	286	242	121	99	42	80	280	280	206	188	1233	500	272	136	3693
IT CSC	905	2722	1376	1234	211	351	619	561	610	1528	3314	1597	1942	971	15999
IT ORNL	781	1313	1437	1596	1226	1041	1870	1777	1107	1695	2631	1477	1124	562	18513
User Mgmt ORNL	1574	8078	5950	5947	3738	3875	5439	7230	6234	8874	17699	10061	5384	2692	87391
Totals	9405	26387	14167	15002	8894	9530	15802	17366	14717	18861	38872	17966	11718	5859	212828

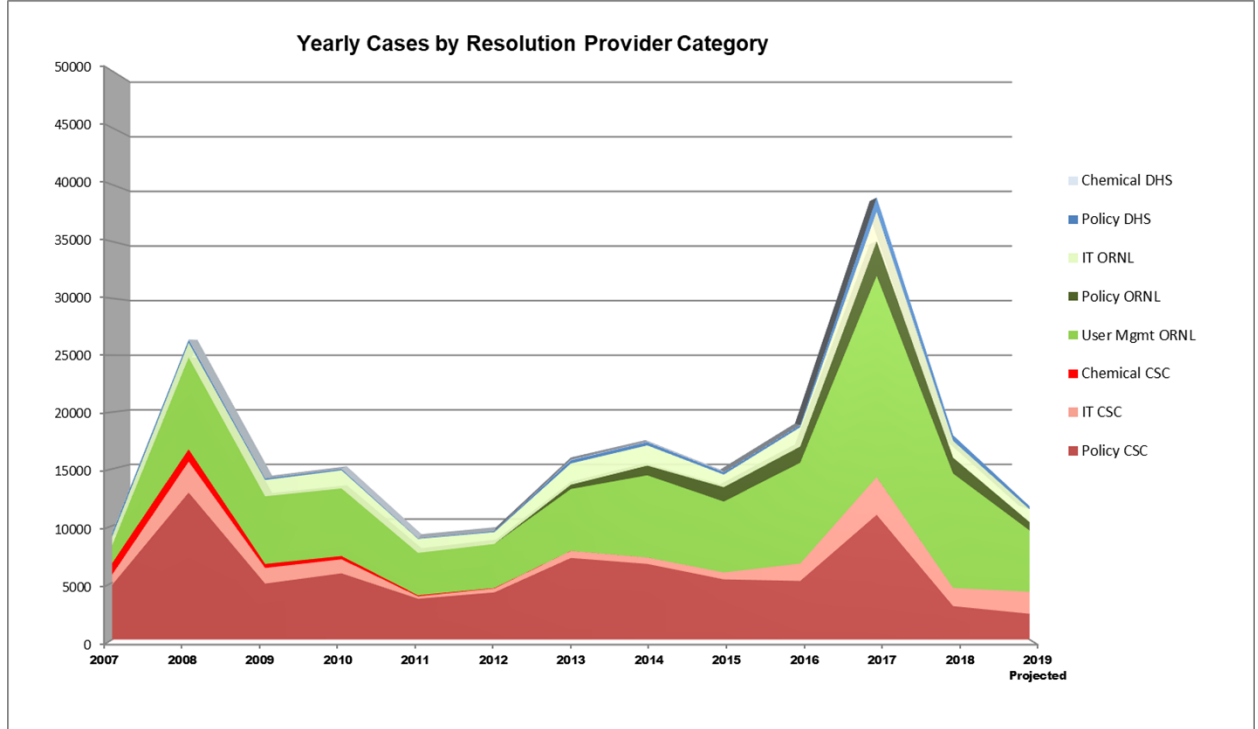


Figure 3. Yearly cases by resolution provider.

The CFATS Help Desk often can anticipate trends based upon regulatory changes and communications within DHS. Over the years, the CFATS Help Desk has improved on the methods and procedures that support the efficiency and effectiveness of CSAT operations and processes.

Cases Generated by Contact Type				
Year	Phone	Email	Fax	Total
2007	8053	1350	2	9405
2008	21633	4753	1	26387
2009	10055	4084	28	14167
2010	10864	4127	11	15002
2011	6216	2673	5	8894
2012	6733	2781	16	9530
2013	11725	4059	18	15802
2014	11947	5406	13	17366
2015	9741	4961	15	14717
2016	13110	5726	25	18861
2017	27624	11128	120	38872
2018	12504	5308	154	17966
2019	4258	1565	36	5859
Total	150205	56356	408	212828

Figure 4. CFATS calls by year.

Breakdown by Case Reason 2007-to-Date														
Case Reason	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Totals
Additional Resources	669	877	558	537	504	1027	486	327	361	534	668	276	63	6887
Appendix A	801	221	100	82	82	48	58	50	50	93	153	44	22	1804
CFATS Information Resources*	0	0	0	0	0	0	0	0	0	0	0	0	0	11
CFATS Regulation	1130	3307	1972	2409	1455	1232	3567	2437	2318	2387	6276	2381	646	31517
CFATS Support Systems Assistance Request	0	0	0	105	283	435	469	500	261	294	207	152	90	2796
Chemical Storage	87	79	22	9	9	9	11	8	4	15	10	1	3	267
CVI	403	1645	1015	1381	1332	1567	2332	2124	1734	2428	5432	2067	764	24224
Economically Critical	206	106	15	8	10	4	8	4	0	0	0	0	0	361
Escalation to DHS	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Explosive Chemicals	66	90	15	7	13	11	23	14	22	21	33	16	4	335
Facility Information	372	692	157	127	115	69	170	139	142	140	365	127	44	2659
Flammable Chemicals	346	694	68	44	33	27	48	42	38	73	234	33	8	1688
General COI Accounting	519	368	85	90	23	27	26	20	20	83	352	59	15	1687
General Refinery	10	8	1	0	0	0	0	0	0	1	1	0	0	21
LNG Storage Facilities	7	18	2	0	1	2	3	2	2	2	1	0	0	40
Mission Critical	33	31	3	0	0	1	2	1	1	0	0	0	0	72
Non-CSAT-Related Inquiries*	0	0	0	0	0	0	0	0	0	0	0	0	0	15
Personnel Surety Program*	0	0	0	0	0	0	0	0	0	0	0	0	0	31
Regulatory Exempt and Inclusions	249	283	45	49	15	14	25	11	12	24	53	14	10	804
Release Chemicals	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Request for Inspector	0	0	0	0	0	0	0	0	0	0	0	0	0	17
Sabotage Contamination	125	110	22	15	8	9	8	11	9	7	29	5	9	367
SSP	22	23	588	930	145	94	345	437	336	281	375	250	41	3867
Summary Report	0	0	0	0	0	0	0	0	0	5	0	0	0	5
SVA	53	1577	502	165	101	76	98	88	140	43	16	0	37	2896
Theft/Diversion Gen Provisions	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Theft/Diversion CW/CWP	7	9	10	1	0	2	5	2	1	4	18	5	1	65
Theft/Diversion EXP/IEDP	53	94	36	51	9	11	29	21	21	26	31	24	8	414
Theft/Diversion WME	18	21	11	5	2	4	3	3	3	3	4	1	1	79
Tiering	58	725	179	60	28	42	55	26	20	24	126	16	6	1365
Toxic Chemicals	93	59	16	16	7	12	23	16	11	25	71	9	4	362
User Change Requests	165	1099	813	915	766	917	1546	1750	1460	1817	0	0	0	11248
User Registration Process	1147	1235	1583	643	325	350	792	555	469	559	1185	547	242	9632
User Roles	292	709	368	557	162	185	302	396	388	759	6059	1482	607	12266
Username/Passwords	1370	8217	4487	5147	2933	2640	3923	7131	6070	7793	15323	9731	2853	77618
Web Portal Troubleshooting	1104	4090	1494	1649	533	715	1445	1251	824	1420	1850	726	304	17405
Totals	9405	26387	14167	15002	8894	9530	15802	17366	14717	18861	38872	17966	5859	212828
October 2016 - CSAT 2.0 Rollout														
*Case Reason Added January 2019														

Figure 5. Yearly cases by case reason.

Breakdown by Tier															
Tier		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Totals-to-Date
Tier I Chemical		86	397	80	53	5	1	3	2	0	0	0	0	0	627
Tier I Policy		2184	10058	3676	4330	2711	3344	6754	6646	5286	5149	10967	2936	1130	65171
Tier I IT		905	2722	1376	1234	211	351	619	561	610	1528	3314	1597	971	15999
Tier II Chemical		921	682	271	232	82	31	0	8	5	2	0	0	0	2234
Tier II Policy		2623	2862	1239	1489	872	799	797	853	1264	1417	3028	1395	368	19006
Tier II IT		552	306	409	733	574	675	1031	1247	856	1450	2415	1368	513	12129
Tier III Chemical		45	33	17	22	7	8	40	9	5	8	0	0	0	194
Tier III Policy		286	242	121	99	42	80	280	280	206	188	1233	500	136	3693
Tier III IT		229	1007	1028	863	652	366	839	530	251	245	216	109	49	6384
UM		1574	8078	5950	5947	3738	3875	5439	7230	6234	8874	17699	10061	2692	87391
Total		9405	26387	14167	15002	8894	9530	15802	17366	14717	18861	38872	17966	5859	212828
*denotes cases resolved by the Call Service Center (Effective 5/1/2013 Tier II Policy cases resolved at ORNL)															
*denotes cases resolved by DHS (Effective 5/1/2013 Tier II Chemistry cases resolved by DHS)															
* denotes cases resolved by ORNL SMEs															
October 2016 - Launch of CSAT 2.0															
September 2017 - updated PSP															
December 2017 - 21,000 user accounts inactive for over 45 days were disabled															

Figure 6. Number of yearly cases by tier.

6. CONCLUSION

Although the CSAT process and tools have changed over the years, the CFATS Help Desk and tier structure has been systematically proven as a way to efficiently resolve issues. Maintaining accuracy and consistency when capturing data and generating reports is crucial. The tiered support structure of the CFATS Help Desk is paramount to its success. The CFATS Help Desk, comprised of the CSC and a group of ORNL SMEs, provides extensive and targeted expertise through the tiered support approach. The usage data compiled since 2007 for each of the tiered support levels of the CFATS Help Desk continues to be used to improve overall operational efficiency and user experience.