AVOIDING THE BAD ENVIRONMENTAL ENDING: THE FORMER MILITARY BASE

2015 IMLA Annual Conference

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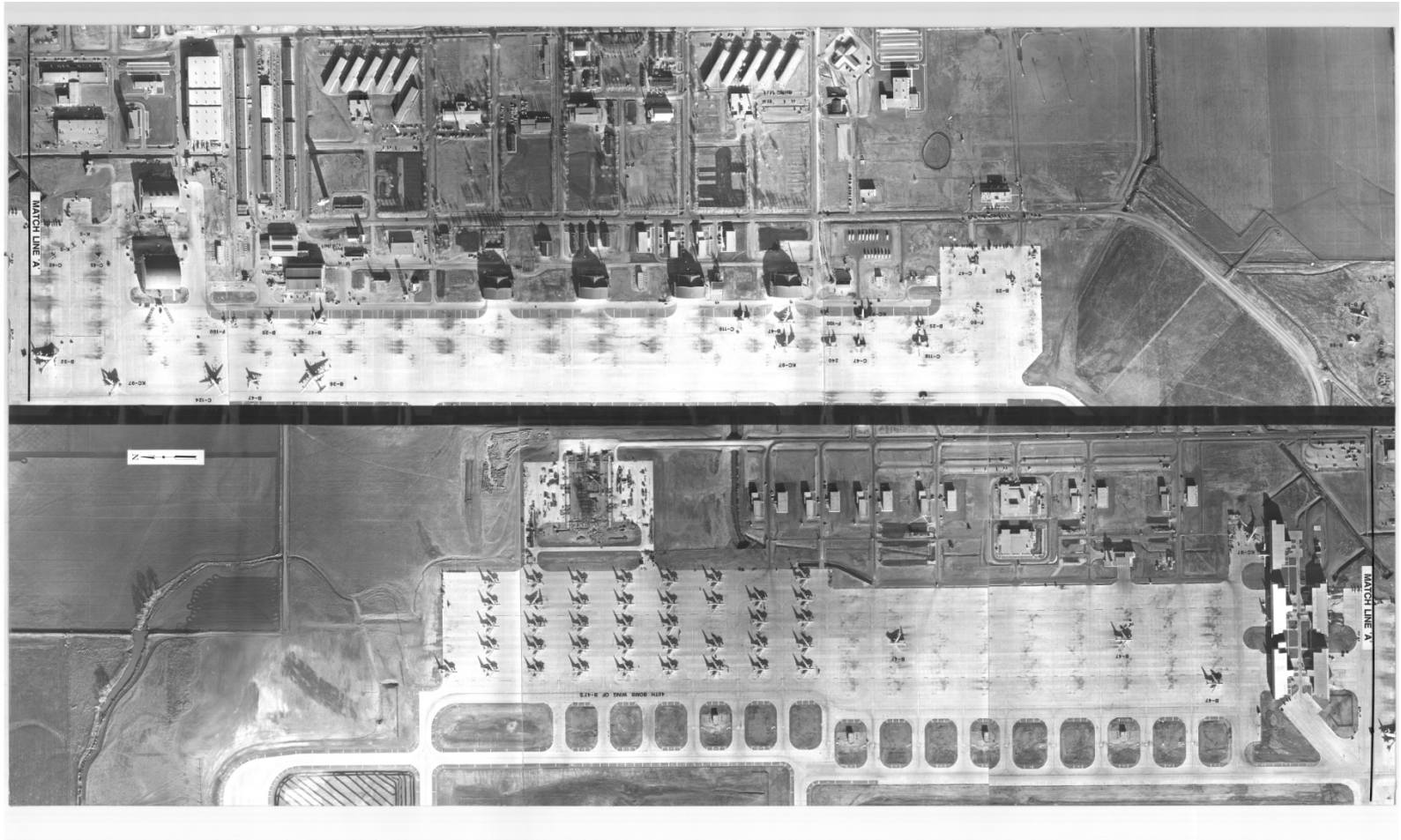
SCHILLING AIR FORCE BASE - 1957



Salina Regional Airport and Industrial Center



1965 – Devastating News and Community Response

- 1942 – Smoky Hill Army Air Field constructed to serve heavy bombardment aircraft during WWII.

- During Cold War era – renamed Schilling Air Force Base – served in the staging of primarily B-47 bombers and in-flight refueling aircraft.

- 1964 - Department of Defense announced Base closure in 1965.

- 1965 – State enabling legislation and establishment of Salina Airport Authority for the purpose of operating a public airport and industrial center on former Base property conveyed by United States. Remaining property conveyed by United States to local school district and State of Kansas for educational purposes.

- 1965 to present – active development of public airport, industrial center, and educational institutions, bringing thousands to former Base property daily.

Twenty Years Later – DERP-FUDS

- When “SARA” amended “CERCLA” in 1986, it also created the Defense Environmental Restoration Program (“DERP”) assigning the DOD with responsibility to carry out response actions for environmental contamination at Formerly Used Defense Sites (“FUDS”).

- The U.S. Army Corps of Engineers (“Corps”) manages the program on behalf of the DOD.

- 1994-95 – The Corps completed the removal of 107 large underground fuel storage tanks placed in service and utilized by the Air Force during Base operations. The Authority’s cooperation by allowing “farming” of contaminated soils on Airport Authority property saved the Corps $4,000,000 in costs associated with the award-winning tank removal project.

Local Concerns Regarding Soil and Groundwater

- 1999 – Following the release of a second site investigation ("SI") in December 1998, the Corps released its first Remedial Investigation ("RI") and Base Line Risk Assessment. The Corps concluded that no military contamination posed a risk to human health and the environment.

- Local concerns regarding the validity of that conclusion in the context of known contamination thought to have been left behind by military activities prompted a unified effort to inform and advise local elected and appointed boards of the human health and economic interests at stake.

- This was the first step in a unified and sustained sense of common purpose among the City, the Authority, the local school district, and KSU-Salina (the "Public Entities"), particularly in recognition of the daily level of human presence at the former Base site and the natural groundwater flow from the former Base site toward the City's public water supply wells.

EPA Involvement and Corps Response

- May 1999 – Public Entities sent correspondence to the Corps questioning the scope and conclusions in the SI and RI. The Corps responded in February 2000 indicating the community had no formal role in the process.

- Summer of 2000 – EPA conducted an Expanded Site Investigation ("ESI") documenting the existence of source areas directly relating to DOD activities.

- The Corps alleged that contaminants found at the former Base resulted from use by its current owners, not only military use.

- March 2001 – Public Entities made an on-site presentation to Corps representatives regarding acquired archival evidence of the extent of DOD use of chlorinated solvents and petroleum products during military use of the Base. At the conclusion of the presentation, the Corps accepted the "lion's share of responsibility" for contamination.

- July 2003 – Public Entities initiated a formal request for establishment of a Restoration Advisory Board ("RAB").

Need for Independent Technical Analysis

- 2005 – Technical questions prompted the Salina Public Entities to pursue engagement of their own environmental technical consultant.

- The Consultant was engaged to conduct (1) a technical review of Corps data, reports, and conclusions; and (2) to prepare the first independent and comprehensive integration and interpretation of all Corps generated data.

- February 2006 – Public presentation of the Consultant's report, including a much shorter TCE/plume travel time to City wells, prompted discussions with Corps military leadership toward a possible settlement involving local responsibility for further investigation and management of the environmental cleanup project.

- Both the Corps' technical consultants and the Consultant for the Public Entities submitted their respective cost-to-complete estimates.

Filing of Suit and Mediation Results

- January 2009 – The Public Entities made demand upon the Corps that settlement negotiations begin with the U.S. Department of Justice.

- May 2010 – Unsuccessful settlement negotiations prompted the Public Entities to file suit in U.S. District Court against the United States.

- Mediation resulted in a Consent Decree by the Court under which KDHE, as the oversight agency, issued a Consent Agreement and Final Order (CAFO) ordering the Salina Public Entities to complete a Remedial Investigation and Feasibility Study ("RI/FS") in exchange for the current payment by the United States of an amount to be utilized for that purpose.

- The RI/FS will provide the basis for KDHE's issuance of a Record of Decision ("ROD") selecting the proper remedy.

Interlocal Cooperation Agreement

- In order to fulfill their responsibilities under the Consent Decree and CAFO, the Public Entities entered into an Interlocal Cooperation Agreement pursuant to the Kansas Interlocal Cooperation Act (K.S.A. 12-2901, et seq.).

- The Agreement addressed how the Public Entities would collectively address the technical, financial, and administrative aspects of compliance with the CAFO.

- The Agreement authorizes the City to receive and disburse the funds received from the United States in payment of its share of the estimated RI/FS costs.

- The Agreement provides for administrative oversight by an “Executive Group” consisting of the chief executive officers of each of the Public Entities and authorizes the City to serve as the designated contracting party for purposes of entering into contracts for services recommended by the Executive Group.

Keys to Successful Assumption of Local Management of Investigation and Environmental Cleanup

1. A unified sense of common purpose among property owners, including financial means and willingness to potentially file claims against the United States.

2. Independent research of base-specific military use of contaminants.

3. A proven track record for responsiveness to state and federal environmental regulators.

4. An independent technical environmental advisor without a conflict of interest with the USACE.

5. Experienced, capable environmental counsel with capacity to file and litigate claims against the United States.

6. The capacity under state law to address the technical, fiscal, and administrative requirements of local project management.

Why All of the Fuss Over Trichloroethene (TCE)?

- TCE was commonly used for metal cleaning in the 1940s-1970s
- 25,000 – 30,000 degreasers by 1943
- People were not careful with TCE; they didn't know it was a problem
- TCE is carcinogenic at very low concentrations



Why is TCE important at Salina?

Real threat to:

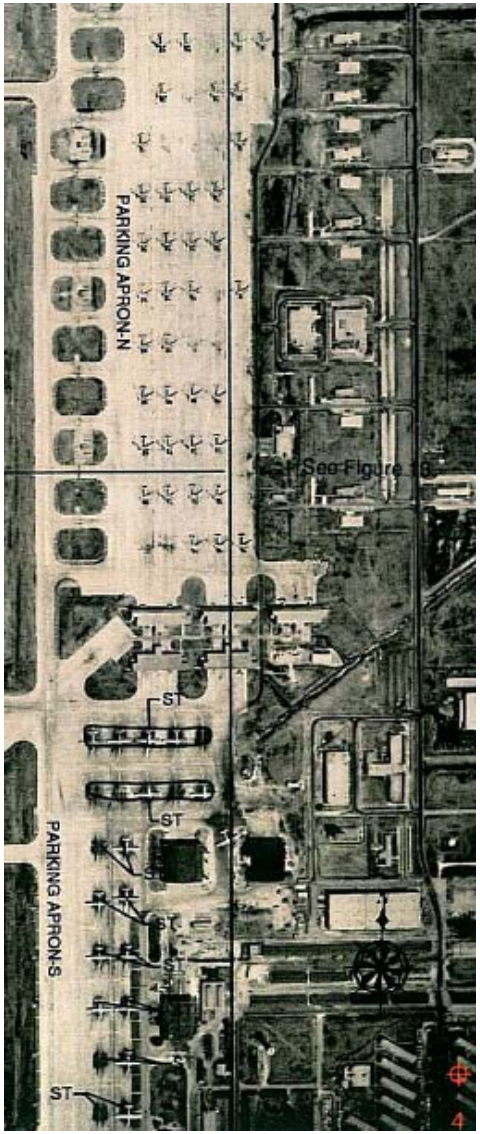
- Health: quality of indoor air and drinking water supply
- Commercial and industrial development
- Property values



TCE at the Former SAFB in Perspective

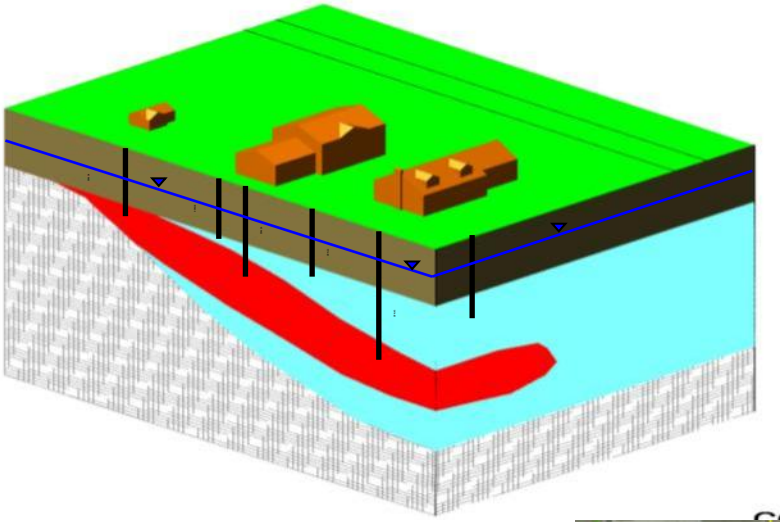
SITE LOCATION AND PLUME MAP	PRESUMED SOURCES	PREDOMINANT DNAPL CONTAMINANTS	PLUME VOLUME (LITERS)	ESTIMATED CHEMICAL MASS DISSOLVED IN PLUME (AS EQUIVALENT DNAPL VOLUME IN LITERS OR 55-GAL DRUMS)
Ocean City, NJ	chemical plant	Trichloroethene 1,1,1-Trichloroethane Tetrachloroethene	5,700,000,000	15,000 (72 drums) 72 drums
Mountain View, California	electronics plant	Trichloroethene 1,1,1-Trichloroethane	6,000,000,000	9800 (47 drums) 47 drums
Cape Cod, Ma.	sewage infiltration beds	Trichloroethene Tetrachloroethene	40,000,000,000	1500 (7 drums) 7 drums
Gloucester, Ont.	special waste landfill	1,4-Dioxane Freon 113	102,000,000	190 (0.9 drum) 0.9 drums
San Jose, Cal.	electronics plant	1,1,1-Trichloroethane Freon 113 1,1-Dichloroethene	5,000,000,000	130 (0.6 drum) 0.6 drums
0 5 km	trainyard, airport	1,1,1-Trichloroethane Trichloroethene Dibromochloropropane	4,500,000,000	80 (0.4 drum) 0.4 drums

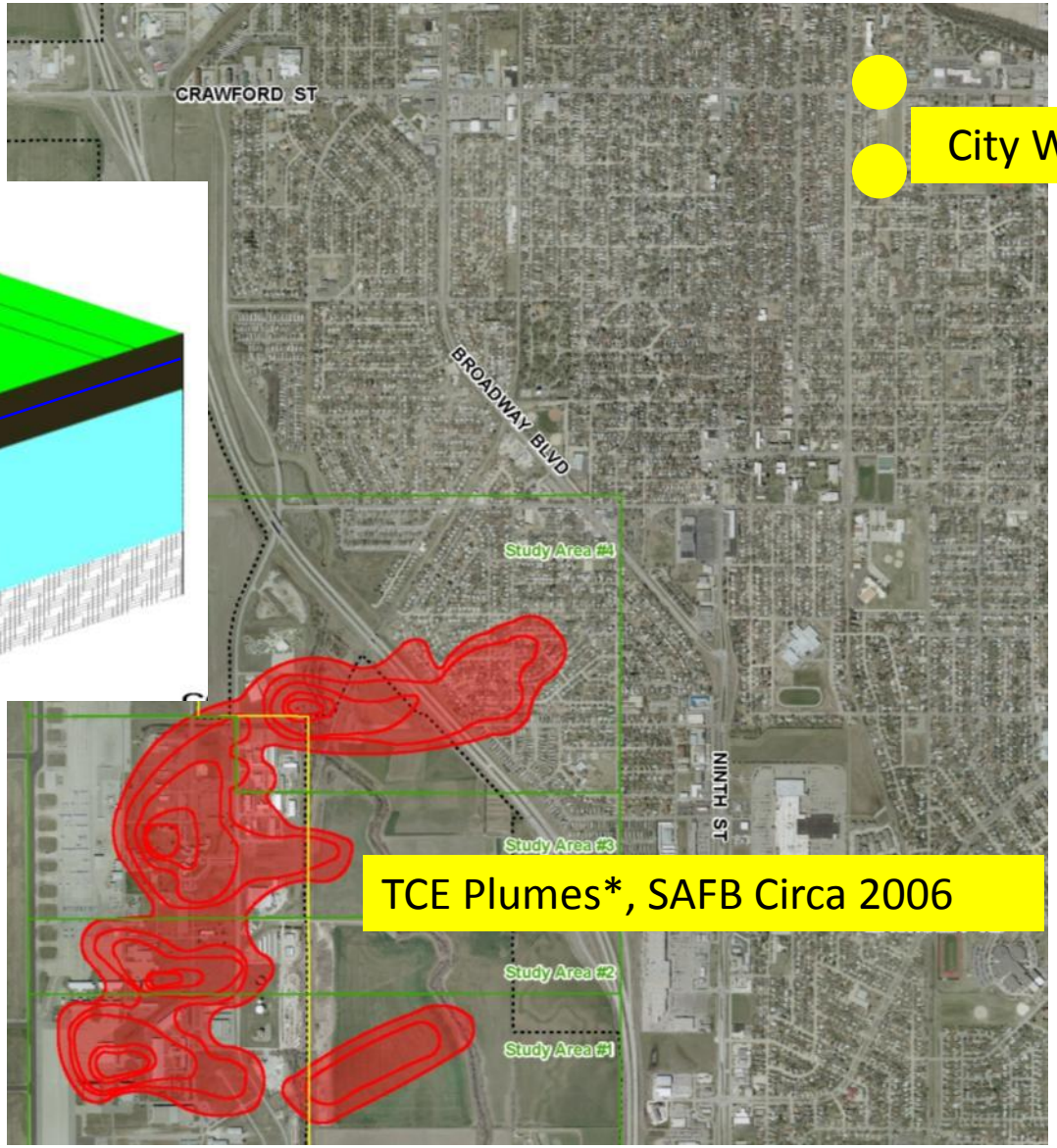
From Cohen and Mercer (1993)



SAFB used 218-254 drums of TCE per month

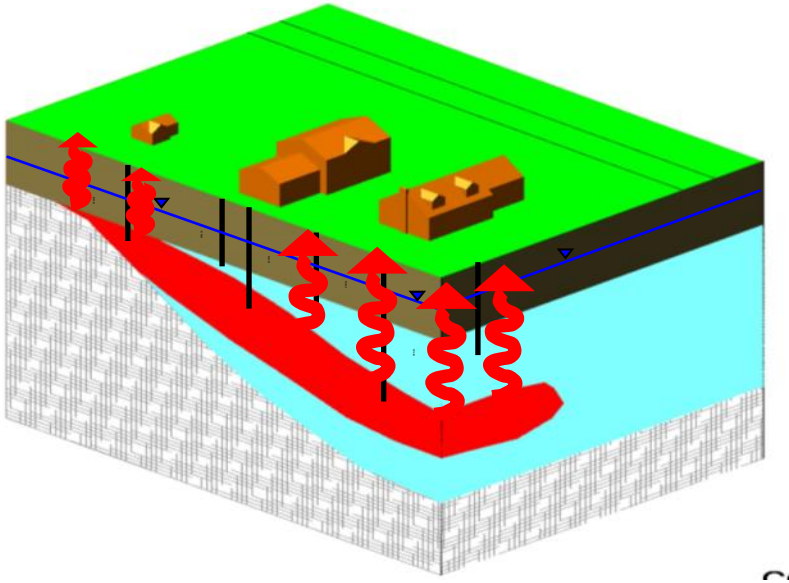
Potential Water Supply Issue





Potential Vapor Intrusion (VI) Issue







State wrestling begins today Page C1

Salina Journal

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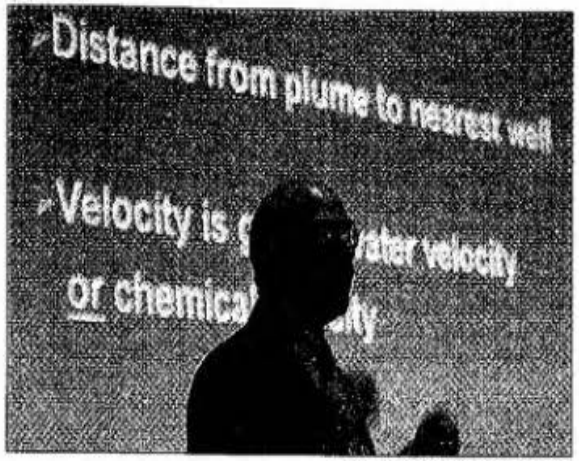
Moran says Corps negligent



JEFF COOPER / Salina Journal

Michael Sklash of Dragun Corp. talks about contamination at the former Schilling Air Force Base on Thursday night on the Kansas State University at Salina campus.

Local entities want Corps of Engineers off cleanup project

By DUANE SCHRAG
Salina Journal

Armed with a private study that says a massive plume of groundwater contamination could reach the city's water wells in eight years — not 75 years, as was recently reported — a group of Salina officials Thursday night said the U.S. Army Corps of Engineers is no longer fit to oversee cleanup of the former Schilling Air Force Base.

"We have squandered time," Tim Rogers, director of the Salina Airport Authority, told a near-capacity crowd of at least 100 at Kansas State University at Salina's College Center conference room.

"The Corps' reports are poorly prepared. The data are hard to find valid. A different direction should be taken."

Officials from the Corps — including project manager Robyn Kiefer — were on hand to listen to the frequently harsh criticism of the Corps' performance. Spokesman Tom O'Hara said the agency needed time to respond to the criticism. He said the Corps is committed to the community and welcomes discussion on the matter.

It's not clear what the alternative would be. The local entities — the city of Salina, Salina School District, Salina Airport Authority and KSU-Salina — have strongly resisted having the project turned over to the federal Environmental Protection Agency.

Doing that almost certainly would mean the area would be declared a Superfund site, a designation that comes with mountains of red tape and huge costs.

Ilene Gaekwad, a Salina attorney representing the group, suggested the local entities should direct the cleanup but the federal government should pay for it. Rep. Jerry Moran, R-Kan., said he's committed to working with the local entities.

"The Corps must remain responsible for paying for it," Moran said. "Clearly their leadership is lacking. The Corps has been negligent."

The picture a consultant painted of the Corps' performance was singularly harsh. Mike Sklash, an engineer with Dragun Corp., said that in calculating how fast the plume of contamination is moving toward city wells, the Corps ignored the hard data that could have helped it come up with an accurate figure, and it bungled much of the rest.

See NEGLIGENT, Page A2

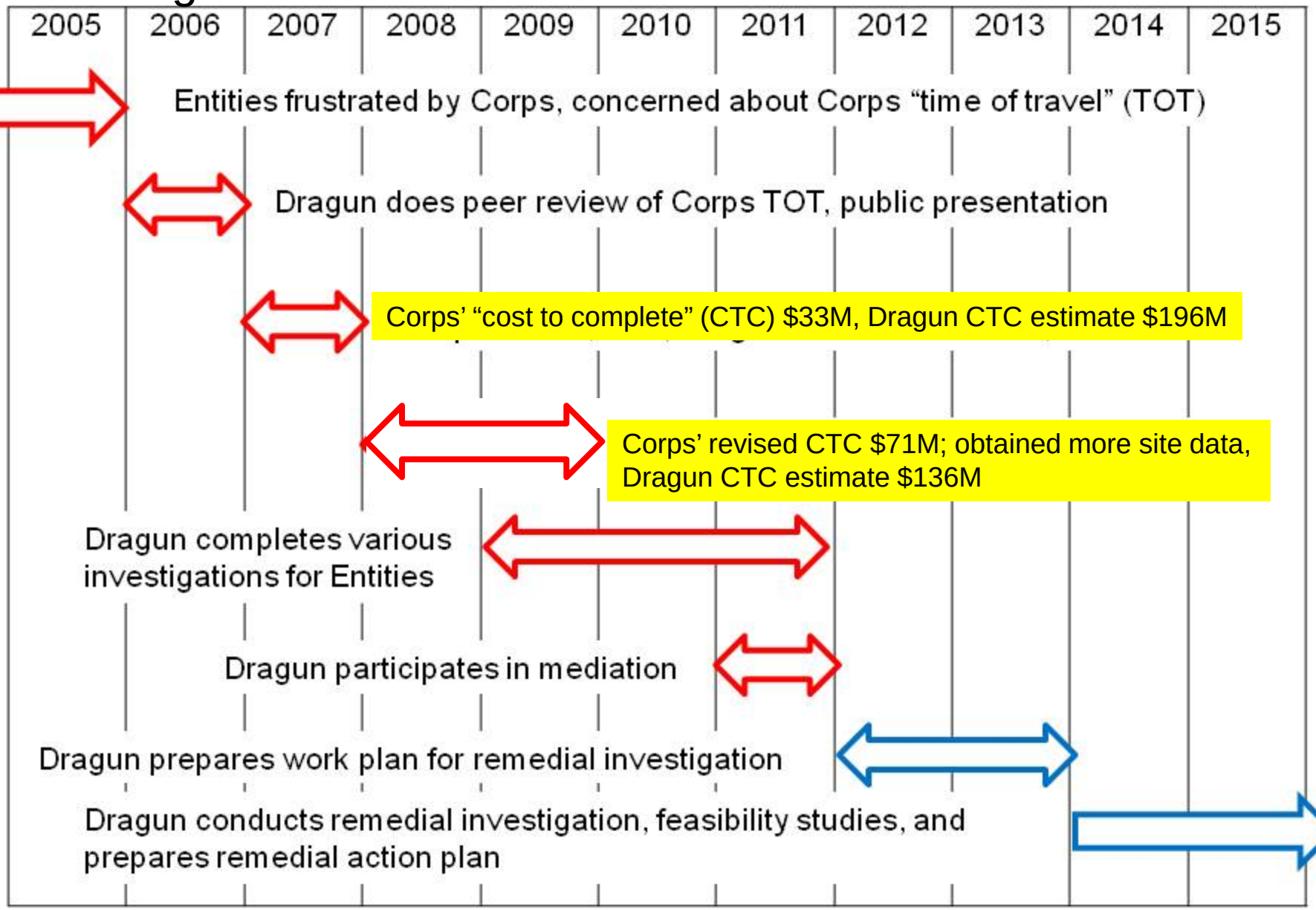
What Did the Corps Do Wrong?

1. Remediation decisions are made based on the Conceptual Site Model (CSM), not what is actually in the subsurface.
2. Remediation will fail or be too costly if CSM is faulty.
3. Corps' Salina CSM was based on:
   - Incomplete data
   - Incorrect interpretations
   - Assumption of geologic simplicity
4. Problems with Corps' communication and apparent lack of urgency.



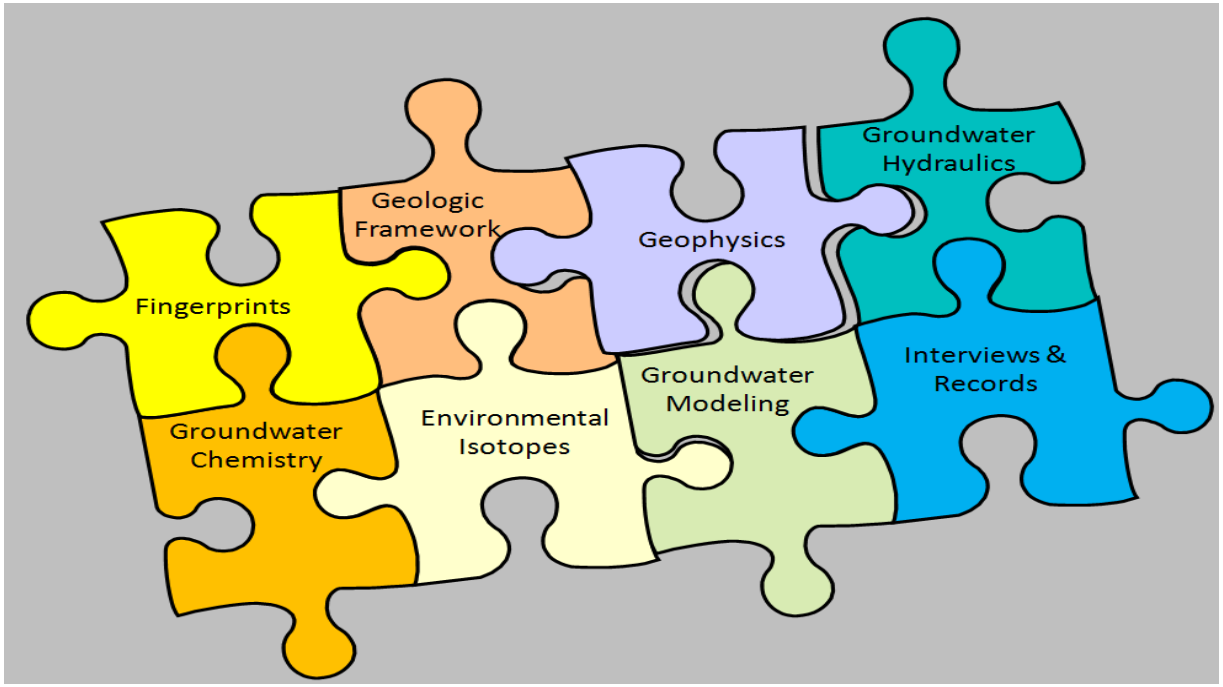
(Fisk, 1944)

Dragun Environmental Advisors Involvement Timeline

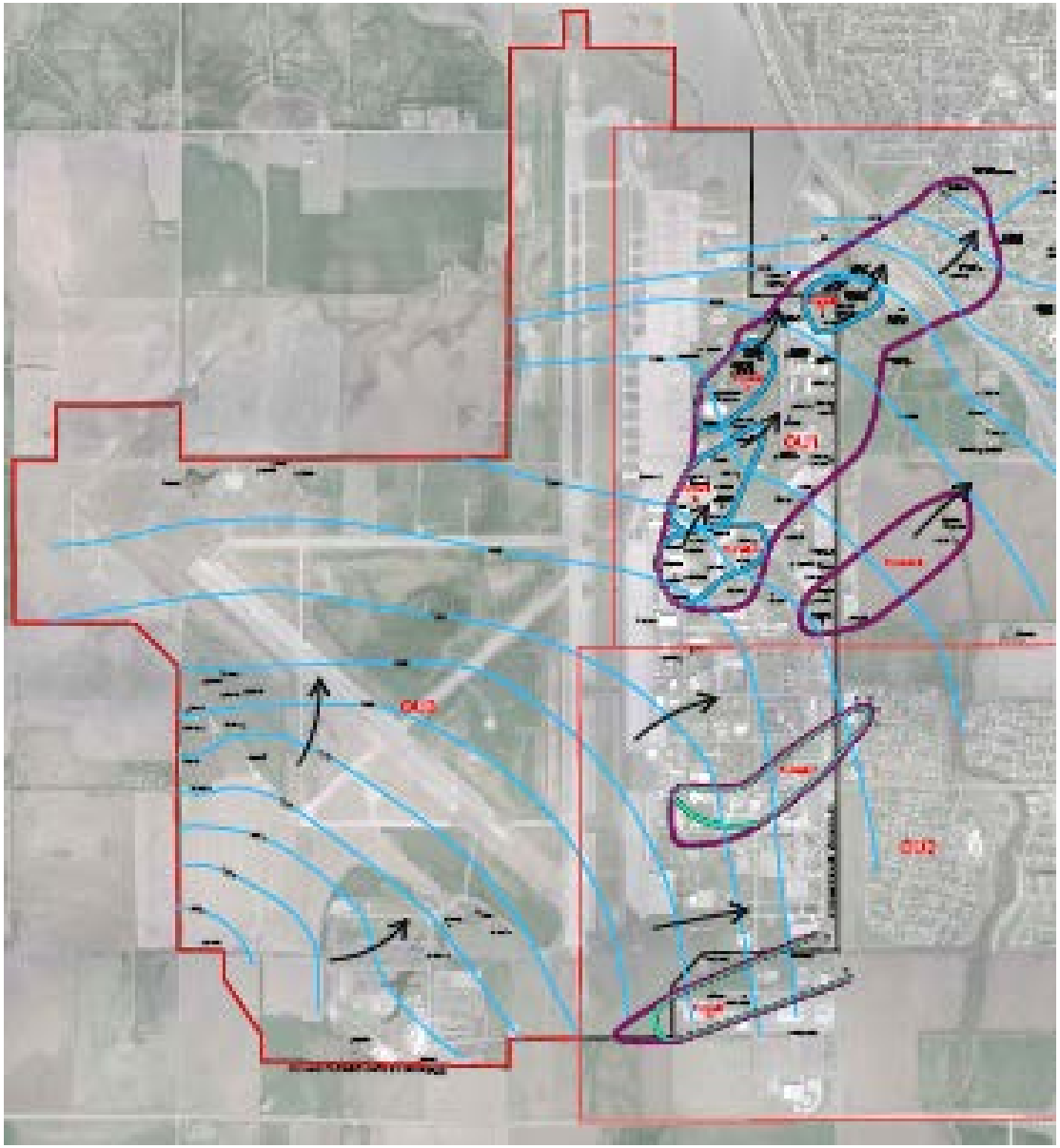


Dragun Environmental Advisors
Remedial Investigation and Feasibility Study Objectives:

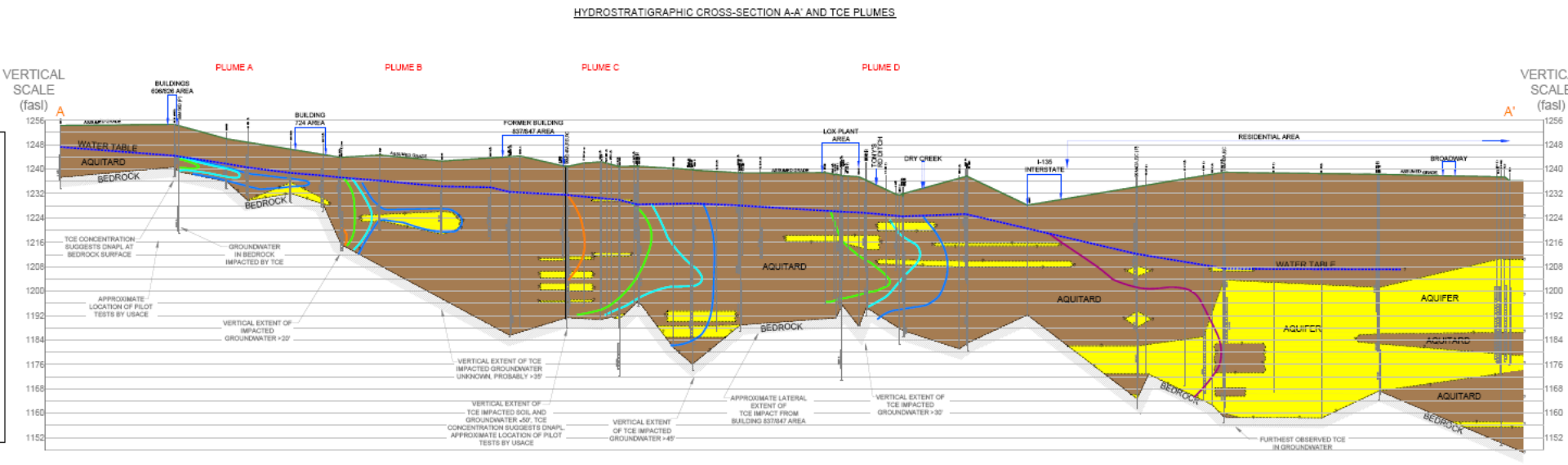
1. Get the CSM right – “put our arms around the problem(s)”
   - ❑ Soil and groundwater impact
   - ❑ Groundwater impact in bedrock
   - ❑ Vapor intrusion
   - ❑ Streams and stream sediment
   - ❑ Information needed to evaluate remedial options



Dragun Conceptual Site Model – Part 1



Dragun Conceptual Site Model – Part 2



Dragun Environmental Advisors
Remedial Investigation and Feasibility Study Objectives:

2. Figure out how to solve the problem(s)
3. Keep the clients and public informed
4. Work with the regulators
5. Do it all quickly



Salina Journal

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Public to be updated on Schilling pollution

By TIM UNRUH Salina Journal Feb 27, 2015 Comments

Mary Landes

A public meeting to discuss the status of the cleanup of the pollution at the former Schilling Air Force Base will be at 9 a.m. today in Room 105 of the City-County Building, 300 W. Ash.

First Things First:
May 2014 Vapor Intrusion Investigation

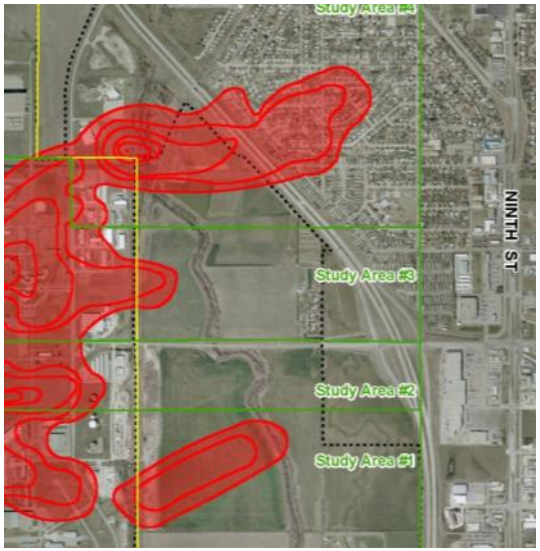




First Things First:
June 2014 Site-wide Groundwater Monitoring Event

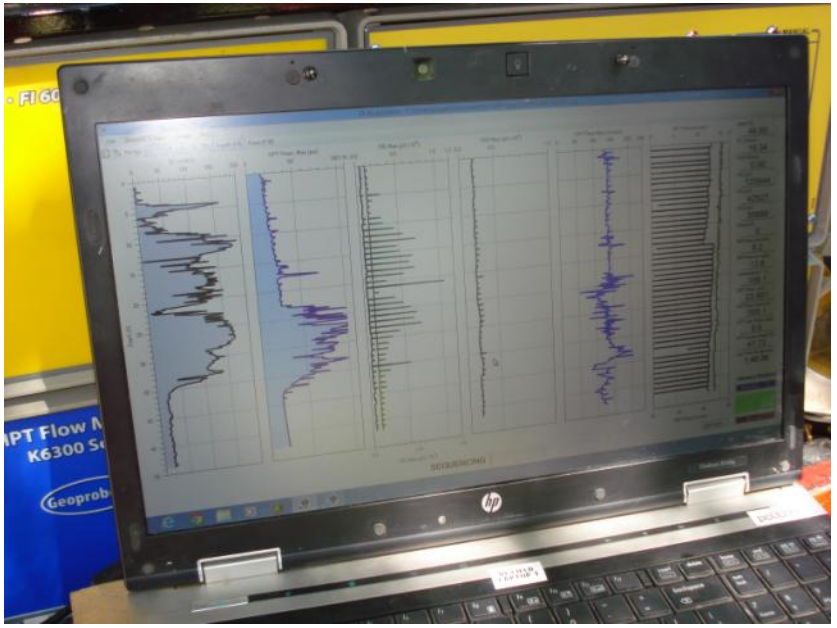






First Things First:
July 2014 Delineate Plume D





Then Site-wide Remedial Investigation
September 2014 – January 2015





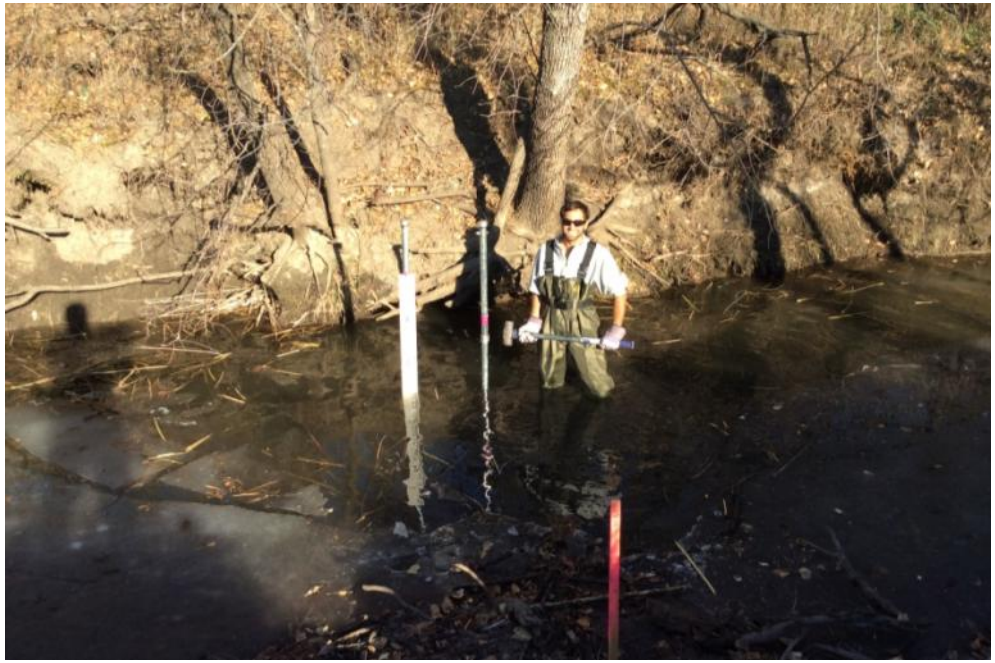


Site-wide Remedial Investigation
September 2014 – January 2015





Surface Water and Sediment Investigation
September 2014 – January 2015



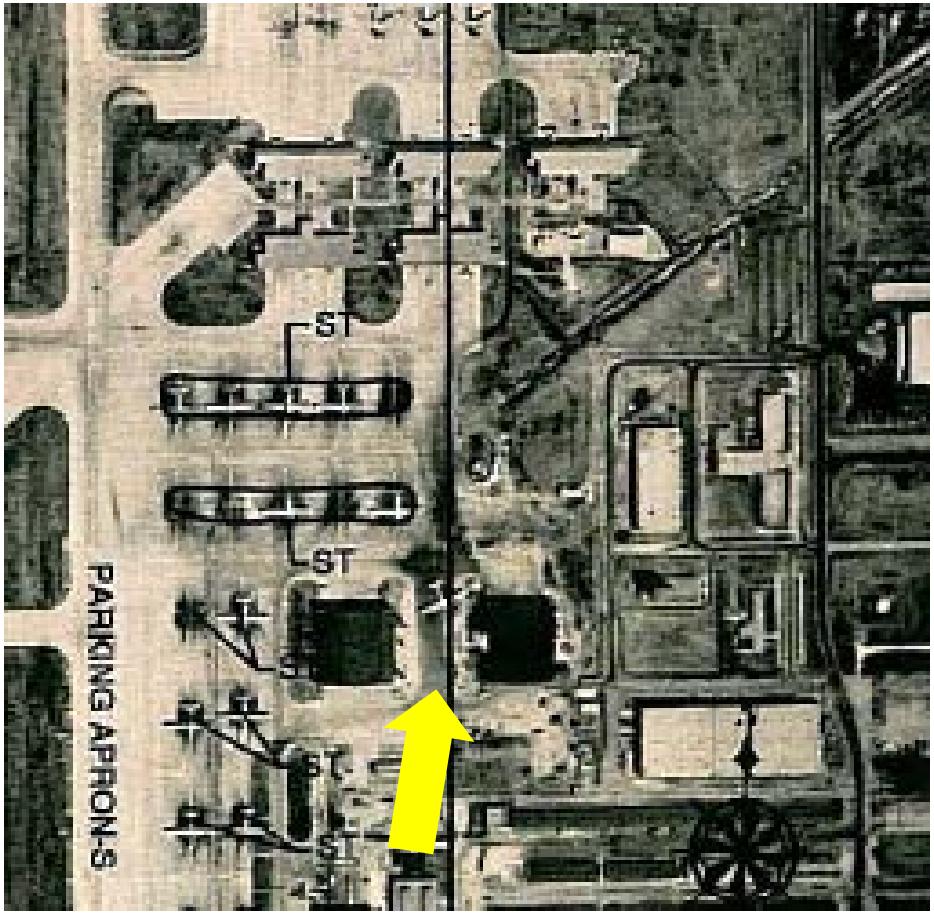


Aquifer Testing to Understand Hydrogeology & Remedial Design
April-May 2015



What Have We Learned In Year 1?

- Delineated most TCE sources to within 10 -100's of feet
- Determined areal extent of plumes
  - Identified sub-plumes and sources
  - Some plumes larger than expected
- TCE widespread in bedrock groundwater
- Aquifer tests and drilling indicate:
  - Geology is really complex
  - Corps remediation plan would <u>never</u> have worked



What's Next?

- Year 2
  - Delineate impacted bedrock groundwater
  - Complete draft summary report
  - Conduct pilot tests for remediation
  - Select remedial options
- Year 3
  - Finalize remedial action plan

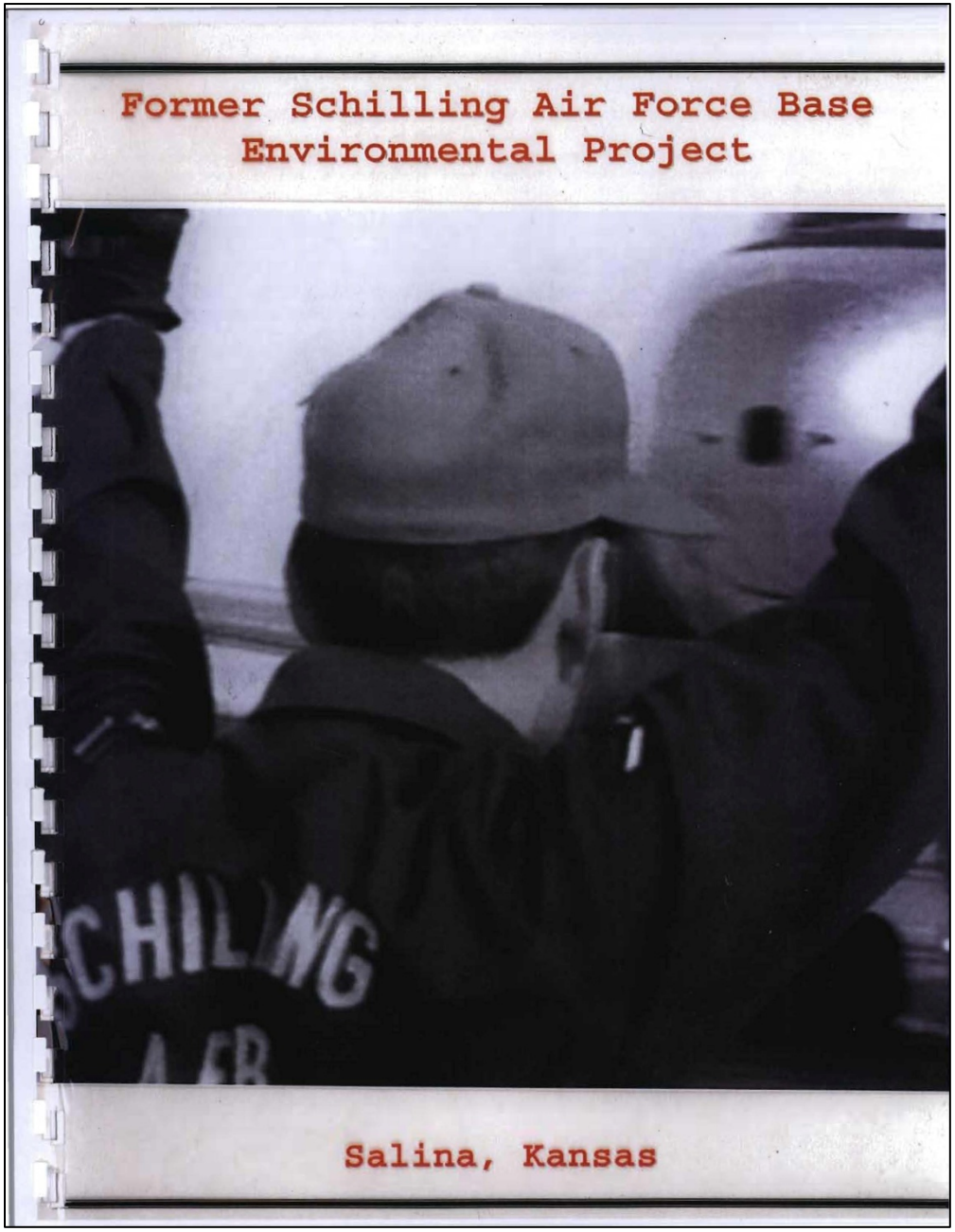


SALINA PUBLIC ENTITIES
V.
U.S.

Facts

- U.S. polluted the former Schilling Air Force Base (“Site”) from 1942 to 1965

- Both sides stipulated to the Court: “At some point or points between 1942 and 1965, during the time the United States owned and operated the Site, military personnel of the United States used, disposed of and caused the release of hazardous substances at the Site.”


Former Schilling Air Force Base
Environmental Project
Salina, Kansas

WITNESS NO. 1

Witness No. 1 will testify that planes were washed out on the wash rack at the 50, 75, or 100-hour inspection intervals. He will testify that Gunk was used to wash the aircraft, and that it was stored in large aboveground tanks near the wash rack.

On November 30, 2000, I met with former Smoky Hill/Schilling Air Force Base ("SAFB" or "Base") personnel Witness No. 1. Witness No. 1 will testify as follows:

Background testimony:

Witness No. 1 stated that he was in the military from 1945 to 1965. He was stationed at SAFB part of 1945 and 1946. He left briefly in 1946, but returned at the end of the year and stayed until 1949 when the Base was closed. From 1947 to 1949, he was a pilot in the 32nd Bomb Squad and worked primarily out of Hangar Nos. 1 and 2. In 1949 he was transferred to Barksdale, Louisiana as part of the 301st Bomb Wing. He returned to Schilling in 1956 and stayed until the Base closed in 1965. He flew B-47s during his second stint at Schilling, and switched to maintenance during the latter years. Witness No. 1 indicated that he also ran radar for the 32nd Bomb Squad. He lived in the barracks near the base hospital.

From approximately 1963 through 1965, Witness No. 1 was head of job control of the 310th Bomb Wing because of his maintenance experience. He was sent to maintenance school in Chanute, Kansas in approximately 1963 for about six weeks, despite the school being an 18-month training session. He will testify that he controlled all maintenance for the 310th Bomb Wing, and he worked in the big hangar at the north end of the base (Big Bertha).

Wash rack testimony:

Witness No. 1 will testify that planes were washed out on the wash rack at the 50, 75, or 100-hour inspection intervals. He will testify that Gunk was used to wash the aircraft, and that it was stored in large aboveground tanks near the wash rack. He will testify that an underground pipe ran from the aboveground tanks to the hose spigots that are still located next to the wash rack. Today, Witness No. 1 can still point out where the hoses hooked up and where the air compressor was located which pressurized the Gunk and caused it to spray out at a high rate of speed. Witness No. 1 will unequivocally testify that the runoff from the wash rack went into the grates that are currently located on the north end of the wash rack, and from there it drained out

Witness No. 1 will unequivocally testify that the runoff from the wash rack went into the grates that are currently on the north end of the wash rack, and from there it drained out into Scanlon Ditch. He will also testify that solvents were used for metal degreasing and that it was common practice to run disposal out onto the ground.

While Witness No. 1 was stationed at Smoky Hill Air Field in the 1940's, he indicated that he and others did maintenance on the B-29s in front of Hangar Nos. 1 and 2. He also indicated that they did maintenance inside of Hangars Nos. 1 and 2. He recalls using carbon tetrachloride ("carbon tet") in the 1940's inside of Hangar Nos. 1 and 2, but indicated that they switched from carbon tet to TCE because carbon tet was considered more toxic.

He will testify that the aboveground tanks were located on soil (as opposed to on concrete or asphalt) and that the area underneath the tanks and in front of the tanks looked like a black top road because of all the solvent leaking from the tanks that spilled onto the ground. He will testify that it was not uncommon for military personnel to spill solvents from buckets as they carried them from the tanks to the hangars.

Carbon Tet use near Hangars 1 and 2:

While Witness No. 1 was stationed at Smoky Hill Air Field in the 1940's, he indicated that he and others did maintenance on the B-29s in front of Hangar Nos. 1 and 2. He also indicated that they did maintenance inside of Hangars Nos. 1 and 2. He recalls using carbon tetrachloride ("carbon tet") in the 1940's inside of Hangar Nos. 1 and 2, but indicated that they switched from carbon tet to TCE because carbon tet was considered more toxic. He recalled that carbon tet evaporated quickly. Witness No. 1 will testify that there were large aboveground tanks located immediately behind Hangar Nos. 1 and 2. He will testify that they were full of solvents. He will testify that the aboveground tanks were located on soil (as opposed to on concrete or asphalt) and that the area underneath the tanks and in front of the tanks looked like "a black top road" because of all the solvent leaking from the tanks that spilled onto the ground. He will testify that it was not uncommon for military personnel to spill solvents from buckets as they carried them from the tanks to the hangars.

Former Fire Training Burn Area:

Witness No. 1 will testify that the military poured "everything," including solvents, on the planes to get them to burn. Witness No. 1 will also testify it appeared that there was always smoke coming from the burn area. According to Witness No. 1, the military would set the burn area on fire and then test the response time from the base fire fighting squad, which was located near the north end of the base. He will testify that on some occasions the fire department personnel were unable to put the fire out.

Miscellaneous:

Witness No. 1 recalled that Gunk was stored in 55-gallon drums, that it was "real potent", and that it burned fingers. Witness No. 1 will testify that the KC-97s had two engines on each side and were "real oil slingers."

862AD May 1954

e. Housekeeping practices concerning storage of oil, solvents and grease was unsatisfactory. The area adjacent to the storage site was soaked with oil and solvents from several leaking barrels, presenting a potential fire hazard. The oil and solvent barrels were not grounded. Open cans of oil (including hydraulic oil), the contents of which were contaminated, were noted.

e. Housekeeping practices concerning storage of oil, solvents and grease was unsatisfactory. The area adjacent to the storage site was soaked with oil and solvents from several leaking barrels, presenting a potential fire hazard.

were considered unsatisfactory. The engineering office, mechanics locker roc tool kit storage room, and hangar working area were extremely dirty and cluttered. A number of empty wall lockers were opened and were found cluttered with paper, aircraft "bits and pieces" and a few aircraft parts, i.e., fuel filter, spark plugs, etc. Two C-21A power units had exhausted fire extinguishers and no entries had been made on the forms for any of the power units since the early part of April. Sheet metal specialists were noted working on aircraft cowling on the bare concrete floor. The cowling was becoming badly scratched and scuffed. Control and management of the dock stocks of expendable items was considered unsatisfactory. Proper binning facilities were not available. The provisions of section VI, par 38, SAC Manual 65-2 were not complied with when stocks were established. Expendable items were noted in several locations in the hangar in various containers. The stock and/or containers were not properly tagged nor was the authorized level indicated.

Delivery of dock stocks was extremely slow. Supply personnel indicated that in numerous instances two inventories were completed before delivery of the first replenishment request. Other deficiencies noted in the organization were as follows:

a. The "MIF" file was very incomplete. The index was not current (25 Sep 53).

b. The provisions of AF Reg 62-10 and SAC letter 66-41 were not fully complied with.

c. Many pertinent directives were not entered on the familiarization chart. Due to the lack of mechanics initials on the chart, it must be assumed that personnel are not remaining current on pertinent directives.

14. 310th Field Maintenance Squadron

a. Field Maintenance Supervision - A vast improvement was noted in operation of the field maintenance organization since the last general inspection. Manpower status boards were utilized and maintained current. The

CHAPTER II

WING COMPTROLLER

Since the Comptroller has stepped into the conservation spotlight, many savings have been realized throughout the 40th Bombardment Wing. Armed with an aggressive attitude and an eye for savings, the Wing Comptroller has initiated a conservation program which has already indicated success in this field.

One of the foremost and the first problems encountered was an excessive amount of solvent being required to properly wash and clean aircraft. Some method of reducing the amount of solvent used was needed. This problem was met by installing a system of settling tanks. Five 250 gallon tanks were obtained from Base Disposal to provide a settling tank system for recovering cleaning solvent used in the wash racks. Approximately 12,000 to 14,000 gallons of solvent are used per month. The savings incurred by the use of the settling tanks were found to be

One of the foremost and the first problems encountered was an excessive amount of solvent being required to properly wash and clean aircraft.

Approximately 12,000 to 14,000 gallons of solvent are used per month.

or wasted. In addition, the tool room personnel were being overworked while the bench stock people had spare time. The situation was remedied by the consolidation of the two units.

chloroethylene. Gunk is commonly used for the removal of oils, persistent greases and exhaust stains from aircraft, practice rockets, etc.

Referring to its use on aircraft it is usually applied in combination with

y machine, and subsequently washed off with water

TOXICITY OF TRANSPO (Gunk) TO STEELHEAD TROUT FINGERLING

R. A. Wagner

I Past History

At the request of the State Department of Game, the Washington Pollution Control Commission initiated bio-assays involving the toxicity of a mixture of emulsified Transpo with carrying reagents and airplane washing reagents to fingerling rainbow trout.

The occurrence of Transpo in various plane washing effluents was first determined to be the paramount cause of kills of fish in Clover and Des Moines Creek during 1957. These findings have been reported in special reports by Wagner and Ziebell, dated June 21, 1957 and April 10, 1957.

II Reason for Tests

During the investigations of fish kills, samples of the plane washing wastes were obtained from the various collecting sumps at McChord Air Force Base and the Seattle-Tacoma Airport. Due to unknown and incalculable dilution factors caused by the presence of either wash waters or storm waters, those samples were considered from a practical standpoint to be adequate and realistic; however, from an academic point of view were considered inadeq

pollution abatement programs.

There were two principal reasons for conduct

(1) To determine the acute toxicity of the materi

data from which the degree of dilution of the ma

be calculated.

III Description of Transpo

Transpo (trade name "Gunk") is a product manufactured by Turco Products Co. This material is a combination of trichloroethylene, unsaturated oils (oleic), cresols, other high-boiling-point aromatics, and tri-ethanolamine. Ratios of the other constituents vary; however, Transpo usually contains about 97% tri-

ed at the South Tacoma fish hatchery of the State

on is found on upper Chambers Cre

gerling steelhead trout averaging

roximately 90 to the pound, and t

ia, filled to the 50 liter mark w

eriod of 72 hours the experiment

atchery water used in this study

n; Total hardness 39 ppm; temperat

ived oxygen saturation 64%.

uate supply of dissolved oxygen without having to

, the desired amount of water was poured into the

This technique increased the dissolved oxygen

12.2 ppm and 94% respectively.

were emulsified by pipetting the desired amount

ired quantity of dilution

s the test animals were

following Table I, which

- 2 -

Transpo (trade name "Gunk") is a product manufactured by Turco Products Co.

Ratios of the other constituents vary; however, Transpo usually contains about 97% trichloroethylene. Gunk is commonly used for the removal of oils, persistent greases and exhaust stains from aircraft, practice rockets, etc.

STANDARD FORM 118c
DECEMBER 1953
PRESCRIBED BY GENERAL
SERVICES ADMINISTRATION
REGULATION 2-IV-201.00

RELATED PERSONAL PROPERTY

REPORT OF EXCESS REAL PROPERTY

1. HOLDING AGENCY NO. KC-302D
2. PAGE 71 OF 130 PAGES OF THIS SCHEDULE
3. SCC GROUP (3 digits)
GSA CONTROL NO. (GSA use only)

Installed in bldg. 626

ITEM NO. (a)	(b)	STANDARD COMMODITY CLASSIFICATION (c)	CONDITION (d)	UNIT (e)	NUMBER OF UNITS (f)	UNIT COST (g)	TOTAL COST (h)	DO NOT USE THIS SPACE (i)
	Installed in bldg. 626, Shop, A/C Eng. & Repr., (Cost included in bldg. cost as listed on SF 118a)							
1	Unit Heater		02	Ea.	6	254.00	1524.00	
2	Unit Heater - less motor		02	Ea.	1	162.50 ~~180.00~~	162.50 ~~180.00~~	
3	Tank fuel oil, 6400 gal.		02	Ea.	1	1200.00	1200.00	
4	Boiler steam, 3500,000 BTU Kewanee		02	Ea.	1	845.00	845.00	
5	Pump vacuum, 20,000 CA Dunham Co.		02	Ea.	1	60.80	60.80	
6	Pump circulate, ½ HP, Bell-Gossett		02	Ea.	1	45.00	45.00	
7	Pump, sump Pemberthy		02	Ea.	1	40.00	40.00	
8	Pump, water, 100 GPM Peerless		02	Ea.	1	250.00	250.00	
9	Pump, condensate		02	Ea.	1	365.00	365.00	
10	Hot water heater, 66 gal. Anning-Lewis		02	Ea.	1	280.00	280.00	
11	Fan, blower Clarage		02	Ea.	1	90.00	90.00	
12	Heater, fuel oil Bell-Gossett		02	Ea.	1	75.00	75.00	
13	Tank, expansion, 8 gal.					15.00	15.00	
14	Tank, Gunk, 300 gal.					250.00	250.00	
15	Motor, gal Rockwell					475.00	475.00	
16	Water softener, 2358 gal. Refinette		02	Ea.	1	640.00	640.00	
17	Fuel, tank, 6400 gal.		02	Ea.	1	3000.00	3000.00	
18	Fixture, Fluor.		02	Ea.	148	22.00	3256.00	
19	Fixture, Fluor.		02	Ea.	9	9.90	76.50	
20	Hoist, electric, 5 ton.		02	Ea.	1	974.78	974.78	
21	Hoist, electric, 5 ton		02	Ea.	1	979.09	979.09	
22	Hoist electric		02	Ea.	1	1950.00	1950.00	
23	Hoist electric, 2000 lb.		02	Ea.	1	450.00	450.00	
24	Hoist electric		02	Ea.	3	1351.33	4054.00	
25	Monorail, 4000#		02	Ea.	3	450.00	1350.00	
26	Monorail		02	Ea.	1	473.94	473.94	
27	Monorail, 1 ton		02	Ea.	2	309.86	619.72	
28	Water cooler		02	Ea.	5	132.50	132.50	
29	Bowl water closet		02	Ea.	2	35.00	70.00	
30	Urinal		02	Ea.	5	33.50	167.50	
31	Lavatory		02	Ea.	5	42.00	210.00	
32	Sink, service		02	Ea.	1	54.00	54.00	
33	Mirror		02	Ea.	4	9.00	36.00	
	TOTAL							

Tank, Gunk, 300 gal.

U. S. GOVERNMENT PRINTING OFFICE 16—60835-1

WITNESS NO. 2

TO: Schilling

FROM: Dustin J.

DATE: Decembe

RE: Testimon

On December 4, 2000,
"Base") personnel Witn

Background Testimony

Witness No. 2 will testi
from 1953 to 1957. In
Witness No. 2 was an a
Secret Control Officer o

He will u
Gunk wa

occasions. He will testif
which was farther north
310th Bomb Wing plane
being washed. He will
the planes were washed
to wash aircraft. He will

WITNESS NO. 3

TO: Schilling A

FROM: Dustin J. D

DATE: January 10,

RE: Testimony

On Ja
"Base

Witness
the Base
606 and
grates lo

Witne
staff
alway
outs.
the personnel working in F

Wash Rack Testimony:

Witness No. 3 will testify
626 and that the runoff dra

50-Gallon Gunk Tanks:

Witness No. 3 will testify
hangars (Buildings Nos. 6
will testify that the Gunk
was on wheels and had a
greasy engine. Witness N
then rinsed it off with high
the hangars.

WITNESS NO. 5

TO: Schilling AF

FROM: Dustin J. De

DATE: December 5,

RE: Testimony o

Witness No
repair, and
place at Per
that engine
regularly wi

Field, Witness No. 5 was
Armaments and Electronics
among other duties, he maint
the flight line.

Maintenance of Aircraft an

Witness No. 5 will testify t
place at Periodic Maintenan
with a cleaning fluid known
cleaning operation drain into
electronics area and these ta
others at Forbes Air Field
armaments. Gunk was trans
were labeled Gunk.

WITNESS NO. 6

INTERVIEW SUMMARY MEMORANDUM

TO: Schilling AFB Exhibit Notebook

FROM: Dustin J. Denning

DATE: December 5, 2000

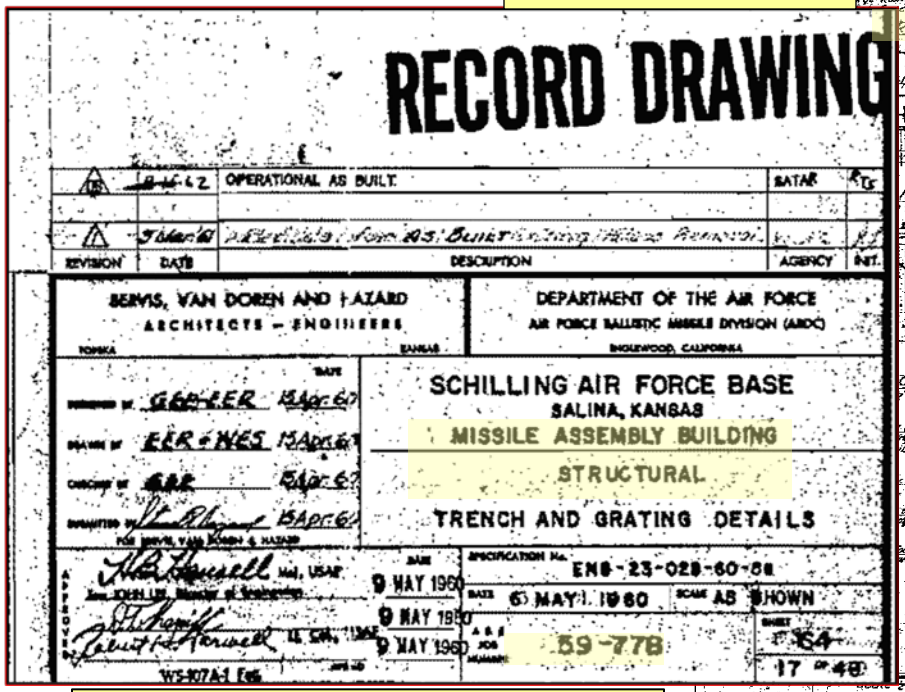
RE: Testimony of Witness No. 6

Witness No. 6 will testify that he frequently used Gunk to wash or wipe clean parts of the B-47 so that he and others could inspect for corrosion pitting.

The Use of Gunk:

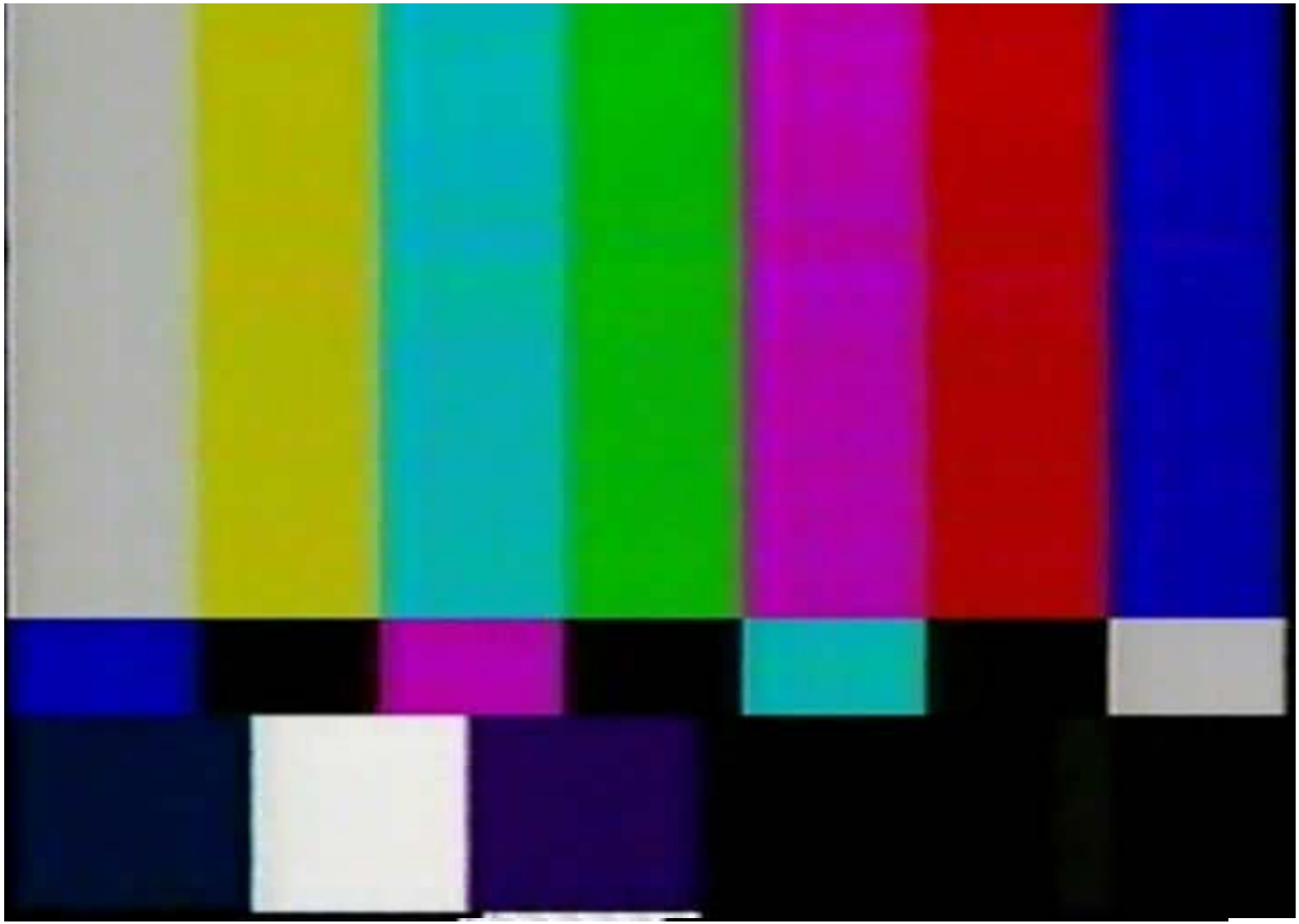
Witness No. 6 will testify that he frequently used Gunk to wash or wipe clean parts of the B-47 so that he and others could inspect for corrosion pitting.

Trichloroethylene Pit



SCHILLING AIR FORCE BASE
SALINA, KANSAS
MISSILE ASSEMBLY BUILDING
MAY 6, 1960

Schilling Air Force Base
Excerpts from Historical Film



Facts (cont.)

- Groundwater threshold for TCE (trichloroethylene) is 5 parts per billion; Corps found 815,000 parts per billion in groundwater; 163,000 times
- Soil threshold for TCE is 84.2 parts per billion; Corps found 530,000 parts per billion in soil; 6,295 times
- 9/28/2011 U.S. EPA declared that TCE causes cancer in humans
- Groundwater flows generally to the northeast; Numerous groundwater plumes, containing TCE, identified
- Plumes are moving under residential and business areas and toward the Salina drinking water supply wells

Timeline of Salina and Corps CONTACTS

- **1991** Corps issues official determination that Site is a Formerly Used Defense Site ("FUDS") under the Defense Environmental Restoration Program ("DERP") at 10 U.S.C. § 2701: the Secretary of Defense "shall carry out …all response actions with respect to releases of hazardous substances from" FUDS

- **1999** EPA 104(e); No admission of military use or release of TCE

- **1999** Corps releases first RI; Corps concludes no military contamination poses a risk to human health or the environment

- **2000** Salina Public Entities ("Salina") dispute first RI; Corps responds that Salina has no formal role

Timeline (cont.)

- **2001** EPA investigates and documents military contamination of Site with TCE, Carbon Tet (carbon tetrachloride), PAHs (polyaromatic hydrocarbons—benzo(a)pyrene in this case) and Dioxin; Cancer-causing compounds; EPA identifies no contamination by Salina

- **2001** Salina and Congressional delegation meet with Colonel Hazel of Corps; Corps accepts “lion’s share of responsibility” at conclusion of meeting

- **Present:** Corps has failed after 25 years to perform: (1) a complete investigation for OU 1, 2 & 3; and (2) any remedial action consistent with a permanent remedy

Legal Issues

- Injunctive relief to compel the Corps to "carry out…all response actions:"

  (1) CERCLA § 9659 citizen claims in either existing suit or separate suit;

  (2) CERCLA § 9613(j)(3) ("the court shall award…such other relief as is consistent with the [NCP].") (injunctions; "de novo standard" when PRP is government entity)

Legal Issues (cont.)

(3) RCRA § 6972 citizen claims

- cost recovery under § 9607(a)
- Attorney and expert fees under cost recovery action and §§ 9659 & 6972

Legal Issues (cont.)

- Third party defense in § 9607(b)(3)
  - Corps admitted: “there is no indication that the activities of the subsequent owners would contribute to the possible contamination”
  - 12/15/2009 Salina requested the Corps to produce any proof of contamination by Salina; Nothing produced

Legal Issues (cont.)

- --7/7/2011 Salina made same request of Corps; Corps produced 429 pages; No proof of any contamination by Salina

- --U.S. is the sole cause of the release of hazardous substances

Cost to Complete Total Remediation

- $136M—Dragun revised estimate after meeting with EPA and KDHE (Report June 9, 2008)
- Pump and treat remedy

Settlement OR TRIAL Approaches

- Mediation
- Consent Decree as to Phase I (RI/FS)
- Negotiate Phase II (Remediation)—Settle or Trial
- Bottom line-military clean up its mess

AVOIDING THE BAD ENVIRONMENTAL ENDING: THE FORMER MILITARY BASE

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