

**Department of Energy (DOE) Operations & Proprietary Interests
Santa Susana Field Laboratory (SSFL)**

Area I / Area IV

**Energy Technology Engineering Center (ETEC)
Operations at The Bowl (Area I) to Support Area IV Programs**

Supportive Evidence: SEC Petition #0235

Prepared for the Advisory Board on Radiation & Worker Health (ABRWH) and
National Institute for Occupational Safety & Worker Health



CORE Advocacy for Nuclear & Aerospace Workers

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LIST OF ACRONYMS & ABBREVIATIONS

ABRWH	Advisory Board on Radiation and Worker Health
ABTSWH	Advisory Board on Toxic Substances and Worker Health
AEC	U.S. Atomic Energy Commission
APTF	Advanced Propulsion Test Facility
AI	Atomics International Division, North American Aviation
Atomics International	Atomics International Division, North American Aviation
CDPHE	California Department of Public Health and Environment
CO	Contracting Officer
CTL	Components Test Laboratory
DEEOIC	Division of Energy Employee Occupational Illness Compensation
D&D	decontamination and decommissioning
DD&D	decontamination, decommissioning and demolition
DHS	Department of Health Services
DOE	U.S. Department of Energy
DOD	U.S. Department of Defense
DOL	U.S. Department of Labor
DTSC	California Department of Toxic Substances Control
EEOICPA	Energy Employee Occupational Illness Compensation Program Act
EPA	U.S. Environmental Protection Agency
EPIP	Environmental Protection Implementation Plan
ERDA	Energy Research and Development Agency
ETEC	Energy Technology Engineering Center
FAB	Final Adjudication Branch
FOIA	Freedom of Information Act
HSA	Historical Site Assessment
HQ	headquarters
IPDU	Integrated Process Development Unit
LETF	Laser Engineering Test Facility
LLTR	Large Leak Test Rig
LMEC	Liquid Metal Engineering Center
LMFBR	Liquid Metal Fast Breeder Reactor
MOU	memorandum of understanding
MSCG	Molten Salt Coal Gasification
NASA	National Aeronautics and Space Administration
NBZ	Northern Buffer Zone
NIOSH	National Institute for Occupational Safety and Health
NRC	Nuclear Regulatory Commission
ORISE	Oak Ridge Institute for Science and Education
PDU	Plant Development Unit
POC	Probability of Causation
R/A	radioactive
RCRA	Resource Conservation and Recovery Act

RFI	RCRA Facility Investigation
RHB	Radiological Health Branch
SABER	Steam Accumulator Blowdown Evaluation Rig
SCTI	Sodium Components Test Installation
SCTL	Sodium Components Test Loop
SB	Senate Bill
SBZ	Southern Buffer Zone
SC&A	Sanford Cohen & Associates
SCTI	Sodium Components Test Installation
SCTL	Small Components Test Loop / Laboratory
SHEA	Safety Health and Environmental Affairs
SPTF	Sodium Pump Test Facility
SRE	Sodium Reactor Experiment
SSFL	Santa Susana Field Laboratory
SEM	Site Exposure Matrix
TM	Technical Memorandum
TO	Task Order

Introduction

CORE Advocacy for Nuclear and Aerospace Workers respectfully submits the following information for review by the U.S. Department of Labor (DOL) Division of Energy Employee Occupational Illness Compensation (DEEOIC) and the U.S. Department of Energy (DOE). The purpose of this document is to provide DEEOIC and DOE with information to assist in determining that Santa Susana Field Laboratory (SSFL) Area I, The Bowl Energy Center ("The Bowl") fulfills legislative criteria under 42 USC § 7384l (a) and (b), and to establish DOE proprietary interests and operations that support the inclusion of SSFL Area I, The Bowl, as a "DOE Facility" and a "covered area" under EEOICPA. Additionally, this information establishes worker rotation between Areas I and IV of SSFL, and supports SEC Petition #0235.

Although DOE operations and proprietary interests throughout SSFL Areas I, II and III are well documented throughout the site's official history, they have yet to be acknowledged under EEOICPA. Currently, only SSFL Area IV is considered to be a "covered area" and a DOE Facility under the Act. For purposes related to this report, however, only DOE operations and proprietary interests at SSFL Area I, The Bowl, are addressed. This submission provides documentation establishing that the Bowl was located on DOE-optioned land and allocated, in its entirety, to DOE and the Energy Technology Engineering Center (ETEC).

- According to DOE documentation and contractual agreements referenced herein, DOE owned, operated and maintained a sufficient level of control of coal gasification and steam generator facilities located at The Bowl, which were considered by DOE to be Government Owned-Contractor Operated (GOCO) facilities.
- ETEC operations at The Bowl supported and operated in conjunction with Area IV Molten Salt Coal Gasification (MSCG) programs, including the DOE Kalena / Power-PAK reactor program.
- DOE-contractor employees performed job duties for DOE-ETEC at SSFL Area I, The Bowl, in service to DOE-sponsored programs.
- SSFL Area I, The Bowl, fulfills legislative criteria under 42 USC § 7384l (a) and (b), and should be considered a DOE Facility. As such, SSFL DOE-contractor employees who performed job duties at the location should be considered eligible for EEOICPA.

DOE operations at Area I were acknowledged by Sanford Cohen & Associates (SC&A) in 2008, in SC&A's *Review of the NIOSH Site Profile for SSFL*, prepared for the National Institute for Occupational Safety and Health (NIOSH).¹ According to SC&A:

"The DOE had operations and facilities in Area I, as well as Area IV of the SSFL facility. However, no consideration has been given to potential exposure in Area I of SSFL, such as potential exposure for the coal gasification process."

CORE Advocacy respectfully requests a detailed response to this submission from DEEOIC and DOE, and the opportunity to address any potential error, discrepancy or deficiency in the information provided herein. It is a privilege to submit the following information for review on behalf of SSFL personnel and EEOICPA claimants.

¹ S. Cohen & Associates (SC&A), "Review of the NIOSH Site Profile for the Santa Susana Field Laboratory," Contract No. 200-2004-03805, Task Order 1: Draft Report SCA-TR-TASK1-0027. Document: sca-ssflsp-r0a.pdf (See pages 12 & 48).

CORE Advocacy for Nuclear and Aerospace Workers

CORE Advocacy for Nuclear & Aerospace Workers provides advocacy and Authorized Representation for Energy Employee Occupational Illness Compensation Program (EEOICPA) claimants of Santa Susana Field Laboratory (SSFL) and its associated facilities; Canoga, VanOwen, DeSolo, and Downey.

CORE Advocacy is a member of the Alliance of Nuclear Worker Advocacy Groups (ANWAG), the Energy Employee Claimant Assistance Project (EECAP), and the former Division of Energy Employee Occupational Illness Compensation Interim Advisory Board (DIAB). CORE Advocacy participates in annual meetings attended by advocates and members of federal agencies tasked with EEOICPA's administration, and maintains an open dialogue with representatives of the federal agencies to continually assure accuracy and consistency in EEOICPA claim adjudication for SSFL personnel.

CORE Advocacy's mission is to ensure transparency and full disclosure of SSFL site history to ensure that EEOICPA decisions are based on an accurate characterization of worker exposure. CORE Advocacy's research of SSFL site and contractor history is based strictly on official documentation created by DOE and its predecessor agencies and contractors, the National Aeronautics and Space Administration (NASA), Department of Defense (DOD), state and federal regulatory agencies, and employee records.

Source Documents

Documents cited in this submission were obtained from publicly accessible government databases, via the Privacy and Freedom of Information Acts (FOIA), from contractor and agency publications and reports, and employee records. Based on the origin of the source materials and their use by state and federal agencies and government contractors to verify employment, EEOICPA eligibility, and to chronicle site history, improve technology, establish site operations, and to guide environmental remediation of SSFL, it is reasonable to expect that DOE and DEEOIC will accept the source documents as credible.

CORE Advocacy assumes no authorship or credit for the following information, nor makes any attempt to reinterpret any official document. Review of all source materials is encouraged to ensure accurate interpretation. CORE Advocacy has made every effort to appropriately credit sources and provides a comprehensive bibliography with a link to download all cited documents that are available.

The Definition of a DOE Facility

Under 42 U.S.C. § 7384I (12), a "DOE Facility" is defined as any building, structure, or premise, including the grounds upon which such building, structure or premise is located -

- (A) in which operations are, or have been, conducted by, or on behalf of the DOE (except for buildings, structures, premises, grounds or operations covered by Executive Order No. 12344, dated February 1, 1982 (42 U.S.C. § 7158 note), pertaining to the Naval Nuclear Propulsion Program); and
- (B) with regard to which the DOE has or had
 - i. a proprietary interest or
 - ii. entered into a contract with an entity to provide management and operation, management and integration, environmental remediation services, construction, or maintenance services.

The DEEOIC Procedure Manual (PM), Chapter 2-0500 indicates that evidence of DOE ownership of the building, structure or premises (such as a deed or affirmative statement from DOE acknowledging ownership), or contractual agreements showing that DOE had a sufficient level of use and control over the property may support a determination that the property constitutes a "DOE Facility."

Contractor Obligations to Provide Information Under EEOICPA

Boeing is under contract with DOE to maintain a Records Management Program and to conduct records information content accountability in accordance with Title 44 USC, Chapters 21, 29, 31, 33 and 35; 36 CFR, Chapter 12, Subchapter B (Records Management); DOE O 243.1 (Records Management Program) and DOE O 243.2 (Vital Records), and any other DOE requirements as directed by the Contracting Officer (CO).

Boeing's contractual obligations include (but are not limited to) the storage, preservation and protection of active and inactive records; retrieval of records from on-and-off-site storage facilities; and supporting DOE records requests including ongoing FOIA requests, Privacy Act requests, EEOICPA and other programs. The contract does not specify or limit the types of information DOE may request or obtain from the contractor, and stipulates that Records Retention standards are applicable for the classes of records described in the contract, *whether or not the records are owned by the Government or by the contractor.*²

SSFL Site Contract Allowed Contractor Use of Entire Facility for AEC Contract Fulfillment

DEEOIC has established that the Atomic Energy Commission (AEC, DOE's predecessor agency) entered into a contract with the entire corporate entity of North American Aviation (NAA) on February 28, 1948. The contract expressly permitted NAA to apply its discretion in the use of any of its facilities, or those leased by the AEC, to perform functions affiliated with the fulfillment of its government contracts.³

As Area IV did not formally exist in 1948, the original AEC-NAA contract did not contain a provision to limit or restrict AEC operations to Area IV. Rather, the contract *specified* that NAA could use *any of its facilities* in service to AEC. Early maps of SSFL suggest that Area IV may not have been formally incepted until the mid-to-late 1950's. Based on maps of site operations and the original facility contract that permitted NAA to utilize SSFL in its totality in service to the AEC, AEC-DOE operations outside Area IV are not only reasonable and to be expected, but well documented by DOE, its predecessor agencies, and its contractors.⁴

SSFL Site Description / Corporate History

The Santa Susana Field Laboratory (SSFL) is approximately 2,850 acres of rocky terrain, located in Ventura County, about 30 miles northwest of Los Angeles, California. SSFL is situated in the Santa Susana Mountains between the San Fernando and Simi Valleys. The site consists of four administrative areas - Areas I, II, III and IV, and two buffer zones; the Northern Buffer Zone (NBZ) and the Southern Buffer Zone (SBZ). The site progresses in an east-to-west direction, beginning with Area I and extending to Areas II, III and IV. Area IV is comprised of the site's westernmost 290 acres.

SSFL's elevation is between 1,880 to 2,150 feet above sea level. The climate is classified as Mediterranean Subtropical, corresponding to an average temperature of 50 degrees Fahrenheit in the winter and 70 degrees Fahrenheit in the summer. Rainfall averages approximately 18 inches per year.

² EMCBC-DOE and The Boeing Company, Contract DE-AC03-99SF21530, Modification 108, Section C.4 "Landlord Activities," Item (g), page 16. Document: [etec_contract_sf21530_final.pdf](#)

³ U.S. Department of Labor (DOL) DEEOIC Memorandum, "Atomics International and Energy Technology Engineering Center," September 7, 2005. Document: [DEEOIC_2005_Decision.pdf](#)

⁴ Maps, Propulsion Field Laboratory, Nuclear Development Field Laboratory, SSFL 1956-1959. Document: [PFL_NDFL_1956-1959.pdf](#)

Some of the site is relatively flat (Area IV), while some portions of the facility exhibit steep relief and rugged terrain consisting of weathered bedrock and alluvium that have been eroded primarily from the surrounding Chatsworth and Santa Susana formations (Areas I-III). Several geological faults cross this area. A shallow groundwater system exists in the surface soils at small isolated locations. A regional groundwater system exists in the deeper fractured Chatsworth Formation. In some areas, groundwater from the Chatsworth Formation flows through fractures in the rock and emerges at the ground surface as seeps or springs.⁵

SSFL was incepted in 1948 as an experimental nuclear and rocket engine testing facility, beginning with the acquisition of Area I. As more property was required to accommodate new programs and projects, the site expanded in a westerly direction. In 1955, NAA's Atomic International and Rocketdyne divisions were established. Rocketdyne functioned primarily in Areas I-III to develop rocket engines for the Air Force and the National Aeronautics and Space Administration (NASA). Atomic International functioned primarily in Area IV to develop nuclear technology for AEC. Based on the research and development to advance space-nuclear technology and later energy research conducted by DOE-ETEC, NAA Atomic International and Rocketdyne employees routinely rotated between NAA facilities and SSFL Areas I-IV.

In 1966, the Liquid Metals Engineering Center (LMEC) was created on a 90-acre subset portion of SSFL's Area IV. By 1968, NAA had become Rockwell North American. By 1974, Rockwell International took over site operations as the established contractor and corporate successor to NAA. Rocketdyne and Atomic International continued to function as their own divisions, although worker rotation continued as various programs and projects were begun, advanced, or concluded.

According to a publication by Rockwell International, LMEC's creation in 1966 was a response to declining development of nuclear power for space applications. The company directed efforts toward Liquid Metals Research and LMEC was established as a "Government Owned, Contractor Operated" (GOCO) facility. Its activities were focused on the development and testing of liquid metal components and systems for nuclear applications, which included such devices as steam generators, pumps, valves, flowmeters, and other instrumentation.

As a result of LMEC's success, DOE expanded the LMEC charter to include all DOE energy programs, resulting in a revision to site operations and a re-designation of LMEC to the DOE Energy Technology Engineering Center (ETEC) in approximately 1978.⁶ Facility documents show that LMEC operations had expanded to include facilities located in SSFL Area I, at The Bowl, potentially as early as 1974.⁷ Facility maps of ETEC operations routinely depict a diagram of Area IV, with an inset diagram of Area I, The Bowl, to reflect DOE-sponsored activities in conjunction with ETEC and site contractors.⁸

By 1984, Atomic International was fully reorganized to become Rockwell International's Energy Systems Group (ESG), although earlier Rockwell International documentation (c. 1970's) references ESG as its own division, and/or uses the terms "Atomic International" and "ESG" interchangeably. In addition, during this era of site operations, the contractor is frequently referred to as "Rockwell International," "Rockwell," "Rocketdyne," or any combination thereof. In 1996, Boeing North American (BNA) took over SSFL

⁵ United States Environmental Protection Agency (EPA), "SSFL Historical Site Assessment (HSA), Final Technical Memorandum: Area IV, Subarea HSA-5A," pages 3-5. Document Name: 1_Final_HSA-5A_TM_Text_12_2011.pdf

⁶ Rockwell International, "Rocketdyne: 30 Years of American Excellence," commemorative book. Document: Rocketdyne_Bowl_30YearsExcellence.pdf

⁷ Internal Letter, Rockwell International - ESG, Re: "One-Quarter-Ton-Per-Hour Coal Hydrolysis Conversion Test Facility." September 15, 1978 / Jeffs-Jacobellis, Page 2, Paragraph 5, "Proposal." California Department of Toxic Substances Control (DTSC) Historical Document Archive. Document: HDMS100012824.pdf

⁸ ETEC Site Map, 1991. Document: Area_IV_Bowl.pdf

operations. Today, BNA is known as Boeing. The term "ETEC" is now loosely used to reference SSFL in its entirety throughout the history of site operations. "ETEC" is also used to reference only Area IV, or implied DOE-related operations. The term can also be used to refer to the contractor, or to the original 90-acre subset portion of Area IV.

ETEC Operations at The Bowl / Worker Rotation

Rotation among DOE-contractor employees between SSFL Areas I-IV has created persistent challenges in identifying specific employee work locations and eligibility to EEOICPA. The Area I vertical [rocket engine] test stands (VTS) at The Bowl provided an ideal setting for DOE-ETEC coal gasification Process Development Units (PDUs), which relied on rocket engine injector and propulsion technology developed by North American Aviation and NASA. In addition, The Bowl's test stands were located in an area of the site that had fallen into disuse, and the location was considered to be suitable to conduct coal gasification feasibility studies for DOE. Area IV did not have existing infrastructure that would meet DOE's requirements for such a test facility.

Contractual agreements and facility documentation chronicles DOE-ETEC's construction, modification, integration, and operation of coal gasification and steam generator operations at The Bowl to support molten salt, coal gasification and steam generator programs located at various Area IV locations, such as the Sodium Components Test Installation (SCTI), Sodium Components Test Loop (SCTL), Sodium Pump Test Facility (SPTF), Building 4005 (a former Uranium Carbide Fuel Fabrication Facility that was modified to accommodate coal preparation processes for the PDU located at The Bowl), and the DOE Kalena / Power-PAK reactor research programs.

It is not uncommon to discover that DOE-contractor employees whose records document participation in Area I Coal Gasification or SABER (Steam Accumulator Blowdown Evaluation Rig) operations at The Bowl (often reflected by Area I "Time Clock Locations" and other employment records), who also have documented employment at various Area IV facilities involved in coal gasification and molten salt research, such as those listed above.⁹

In addition, it should be noted that The Bowl was not considered to be a "Restricted Area." It was accessible to employees of the DOE-contractor. It has been established that workers routinely rotated between all areas of SSFL after utilizing "Time Clock Locations" throughout the site, and that employees frequently clocked-in at one location prior to performing DOE-related job duties at another location.

In review of site and project history at SSFL, it should be noted that DOE operations and programs that were conducted at opposite ends of the facility (Area I and Area IV) required worker rotation and transport of materials across the site (Areas II and III). In addition, the company's contractual latitude to use any of its facilities in service to DOE provides a reasonable explanation for documented DOE waste storage and disposal at locations outside Area IV. Moreover, the documentation consistently supports a determination that SSFL Area I, The Bowl, should be considered a DOE Facility under EEOICPA and that the exclusion of any DOE-contractor employee based on a presumed work location is inappropriate, since covered employment in service to DOE programs cannot be reliably ruled out in the majority of cases.

The following information provides references to DOE contracts for operations at The Bowl, in addition to site-specific information supportive of The Bowl's inclusion as a covered facility under EEOICPA.

⁹ EEOICPA Case ID's:

[Redacted]

DOE - ETEC Operations at SSFL Area I - "The Bowl"

The Bowl is located in SSFL Area I, in a concave area resembling a rock quarry. It was considered ideal for the first rocket engine testing facility constructed at SSFL (1948) to model Wernher von Braun's V-2 rocket used during WWII. The V-2 is perhaps the earliest example of a rocket that utilized the molten-salt (liquid metal) battery concept developed by the German scientist, Georg Otto. The three vertical rocket engine test stands erected at The Bowl (VTS-1, VTS-2, and VTS-3) were the first rocket engine test stands at SSFL.

By 1963, the VTS test stands had become outdated. Rocket engine testing at The Bowl became limited, as more modern test stands were constructed in other locations at SSFL. Eventually, the The Bowl's VTS test stands became unused until the early 1970's when Rockwell International and the Energy Research and Development Administration (ERDA, a DOE predecessor agency) sought a suitable location for coal gasification pilot test facilities.

The assertion that DOE operations remained confined within Area IV not only conflicts with facility and employee records, but makes little sense when infrastructure required to accommodate various DOE programs is taken into consideration. Based on the original facility contract that expressly permitted the company to apply its discretion in utilizing the entirety of its facilities to fulfill government contracts, why wouldn't the contractor and DOE have used existing infrastructure? Doing so was logical, economical, and contractually permitted.

Area I VTS structures at The Bowl were found to be ideal for DOE-ETEC coal gasification Process Development Units (PDUs) that relied on rocket engine injector and propulsion technology developed by North American Aviation and NASA. Conversely, Area IV did not have similar infrastructure, nor did it have suitable locations where the construction of such infrastructure would be appropriate for coal gasification pilot plant feasibility studies. Eventually, coal gasification, steam generator, and laser research facilities for DOE-ETEC would result in The Bowl's allocation, *in its entirety*, to DOE-ETEC energy research purposes.

Contract E(49-18)-1529: Molten Salt Coal Gasification Project

On July 2, 1975 a letter from Rockwell-Atomics International to the Contract Services Division of ERDA addressed a proposed subcontract for Initial Effort for Coal Gasification Pilot Plant Design under **Prime Contract E(49-18)-1529**.¹⁰ Additional Rockwell International / ERDA documentation (referenced in greater detail, below) indicates that in 1975, The Bowl Area was assigned in its entirety to Atomics International (which later became known as the Energy Systems Group division, or "ESG").

On March 28, 1976 a contract was awarded to Atomics International (ESG) by ERDA's Division of Procurement and Coal Conversion & Utilization (**Contract No. E(49-18)-2342**) for the Molten Salt Coal Gasification Project (MSCG), to be located at the VTS-2 Bowl Area Test Stand (SSFL Area I).¹¹

Contract E(49-18)-2342: Molten Salt Coal Gasification Project

ERDA Contract E(49-18)-2342, Statement of Work (Item A, Objectives) defines project objectives commensurate with demonstrating the feasibility of the MSCG process for use in the environmentally acceptable generation of electric power. The Process Demonstration Unit (PDU) was scheduled to be

¹⁰ Rockwell International / Atomics International letter from Donald Knitey, SSFL to C. Weirich, ERDA, July 2, 1975. Document: ERDA_7_2_1975.pdf

¹¹ Contract No. E(49-18)-2342, ERDA Divisions of Procurement and Coal Conversion & Utilization to Atomics International, March 8, 1976. Document: Responsive Documents HQ 2015 01601 F_Bowl_ERDA.pdf

built for converting 1-Ton Per Hour (TPH) of coal to a non-polluting, low-Btu fuel to regenerate sodium carbonate. The 1-TPH PDU would be operated and used for research and development efforts aimed at optimizing the overall process and obtaining engineering and cost data for designing a full-scale commercial plant.¹²

ERDA Contract E(49-18)-2342, Scope of Work (Item B, General) specified that the Contractor would carry out the program in six phases that appear to fulfill statutory criteria under 42 USC § 7384(a) and (b) to define DOE proprietary interest: (1) preliminary engineering; (2) detailed engineering and design; (3) component procurement; (4) PDU erection (construction); (5) start-up (operation); and (6) PDU operation and evaluation.¹³

ERDA Contract E(49-18)-2342, Scope of Work (Section 8, PDU Disposition) states that the PDU was considered to be Government Property, appearing to fulfill both the legislative definition of DOE proprietary interest and the DEEOIC PM that states that evidence of DOE ownership of a building, structure, or premise (such as a deed or affirmative statement from DOE acknowledging ownership), or a contractual agreement showing that DOE had a sufficient level of use and control over the property, can be sufficient to establish DOE proprietary interest.¹⁴

Rockwell International was contractually required to provide ERDA-DOE with periodic progress reports based on ERDA's established contract schedule and report guidelines specified by ERDA. The contractor was directed to prepare reports for ERDA's Assistant Administrator for Fossil Energy; ERDA's Contracting Officer (CO) Representative; ERDA's Project Manager; ERDA's Patent Office Assistance General Counsel for Patents; ERDA's Technical Information Center Special Assistant for Reproduction and Processing; ERDA's Chief of Financial Performance Section (CFPS) Finance Operations; and ERDA's Chief Management Analysis and Directive Branch.¹⁵

Contract EX-77-C-01-2518

In 2016, CORE Advocacy provided DEEOIC with a copy of a Rockwell International Internal Letter that referenced DOE Contract EX-77-C-01-2518 for DOE Coal Gasification Pilot Test Facilities at The Bowl in SSFL Area I. The document was provided on behalf of an EEOICPA claimant whose participation in DOE Coal Gasification processes has been disqualified based on The Bowl's location in Area I.¹⁶

The Internal Letter proposed the expansion, modification, construction, relocation, and operation of the existing DOE 1/4-TPH Coal Research Pilot Plant that had operated under DOE Contract EX-77-C-01-2518 at The Bowl since December 1975. In addition, the letter specified that the 1975 contract had allocated The Bowl, in its entirety, to Rockwell International ESG division for the advancement of the DOE Coal Gasification Program.

The proposed relocation of the facility from its then-existing location at the Area I Laser Engineering Test Facility (LETF) to the Area I Bowl Control Center was described as an effort by ESG to, "eliminate operational constraints which would prevent ESG from being able to meet contract schedules." In

¹² *Ibid.*, Appendix A, Statement of Work, Item A, "Objectives," Appendix page 2 / Document page 8.

¹³ *Ibid.*, Appendix A, Scope of Work, Item B, "General," Appendix page 2 / Document page 9.

¹⁴ *Ibid.*, Appendix A, Item B "Scope of Work," Section 8, "PDU Disposition," Appendix page 5 / Document page 12.

¹⁵ *Ibid.*, Appendix D, "Contract Report Instructions," page 57.

¹⁶ Internal Letter, Rockwell International - ESG, Re: "One-Quarter-Ton-Per-Hour Coal Hydrolysis Conversion Test Facility," September 15, 1978 / Jeffs-Jacobellis, California Department of Toxic Substances Control (DTSC) Historical Document Archive, Document: HDMS100012824.pdf

addition, the letter referenced several other potentially suitable locations for the DOE facility that included both of the Area I Components Test Laboratories (CTL-I and CTL-V), and the vacant rocket engine test stand located at The Bowl (VTS-1). Further, the letter described facility modifications and operations that would encompass the design of a 4-TPH Reactor for DOE, scheduled for completion at The Bowl in 1979. A need for DOE-contractor employees to operate the facility was detailed, and the letter specified that the DOE-contractor employees on the first shift would be allocated to "DOE Reactor Development Program Operations" while those on the second shift would address Hydrolysis Process Applications and Development.

By all indications, the internal letter indicated that Rockwell International was exercising its contractual authority, granted by the AEC in the original facility contract, to utilize any company location at the contractor's discretion, in the fulfillment of DOE-related contracts; and that the contracts referenced specific DOE coal gasification facilities and operations located at SSFL Area I, The Bowl.

DDEOIC determined that the document was insufficient to fulfill legislative criteria used to establish DOE proprietary interests under the Act, and disqualified the employee's Area I Coal Gasification employment. However, new information has been obtained about DOE Contract EX-77-C-01-2518 that may provide DDEOIC with a sufficient basis to reverse its decision.¹⁷

New Information: Contract EX-77-C-01-2518

A 1980 Rockwell International Quarterly Progress Report prepared for DOE (Contract DE-AC01-78ET10328 / ET-10328-27), in accordance with the contractor's obligations to provide DOE with periodic reports, clarifies that DOE Contract EX-77-C-01-2518 was considered to be a "predecessor contract." In addition, the progress report clarifies that DOE changed its contractual numbering scheme for the DOE Coal Hydrogasification Program at SSFL.¹⁸

The Quarterly Progress Report outlines the objectives and scope of the advance and development of coal gasification facilities for DOE, including the design, construction and operation of a 3/4-TPH coal-feed rate integrated process development unit (IPDU) at the "ESG Energy Bowl."¹⁹

The Quarterly Progress Report describes a scope of work involving an integrated combination of design, construction, and operation. It clarifies that, while designing and beginning construction of the IPDU at The Bowl, some testing had already been carried out under the predecessor contract (EX-77-01-2518). A diagram outlines the program schedule for the facility's design, advanced procurement, construction, design and fabrication of reactor trains, preparation of systems operation, and testing. Additional information is provided in the Summary of Progress, which describes the construction and integration of the facility, and implementation of a preliminary data process stream regarding air, water, ground contamination, and the production of benzene, toluene and xylene. A photo (p. 18) of the facility shows its integration onto a vertical rocket engine test stand (VTS) located at SSFL Area I, The Bowl. Of interest are the former liquid oxygen tank (LOX) once used for rocket engine testing, and additional Bowl Area vertical rocket engine test stands visible in the background.

¹⁷ Case ID: [Redacted]- Rockwell Employee / Area I (The Bowl) Coal Gasification, SABER, APTF / Area IV (SCTI) Molten Salt Testing

¹⁸ Rockwell International ESG for DOE, Quarterly Progress Report, "Coal Hydrogasification Process Development," for the period October 1, 1980 to December 31, 1980, DOE Contract No. DE-AC01-78ET10328. Document: Rockwell_ESG_1981.pdf - See Page 9.

¹⁹ *ibid.*, Document page 6, Section 3.0 - "Description of Technical Progress."

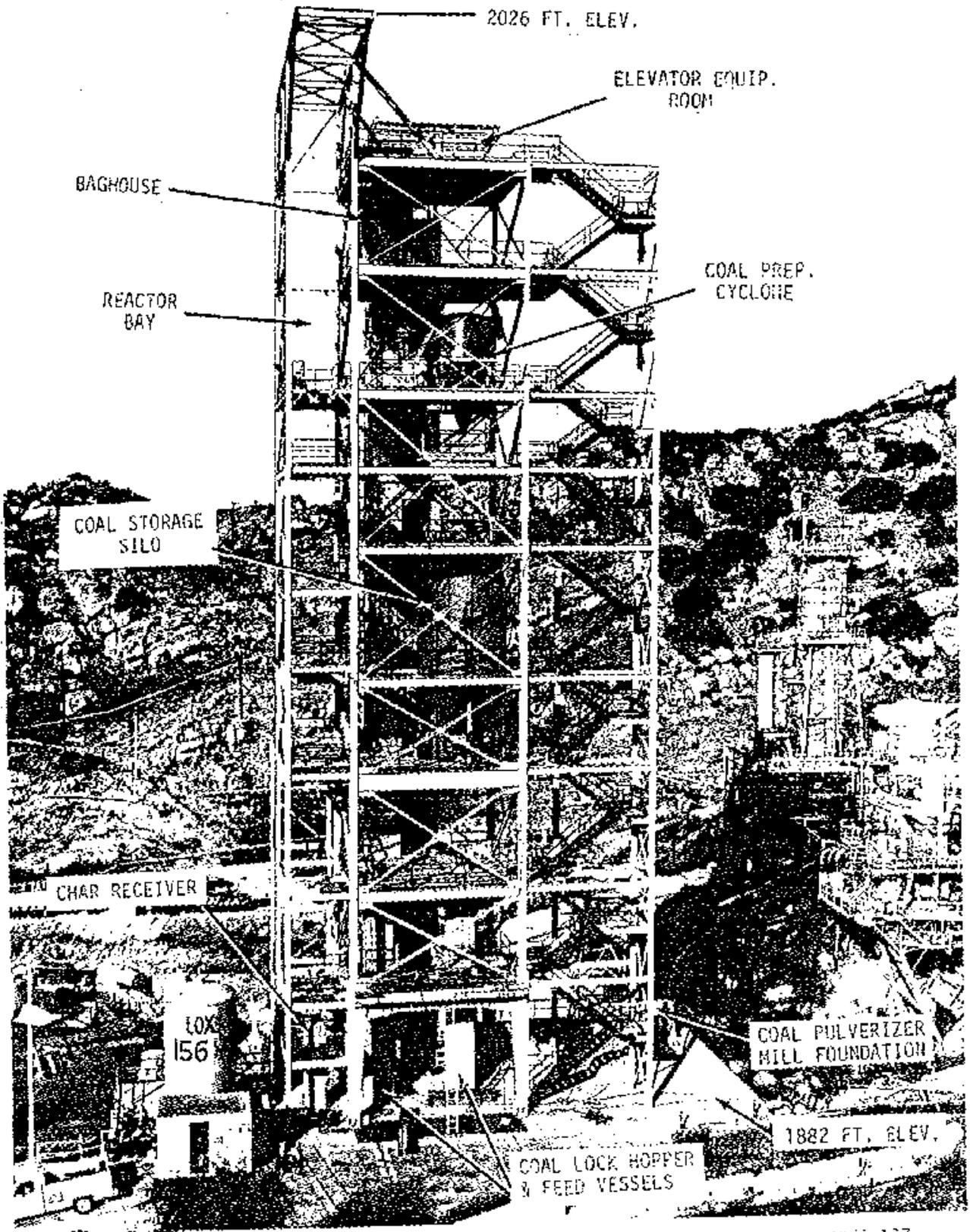


Figure 2. 3/4 TPH Hydrogasification IPDG Facility:
Construction Progress on December 31, 1980

9361-177

New Information: Contract EX-77-C-01-2518 (continued)

According to a 1978 report authored by Bechtel National, Inc., the Rocketdyne coal gasification program was sponsored by DOE under Contract EX-77-C-01-2518.²⁰ The Rocketdyne tests were conducted in an "entrained-downflow tubular reactor system" designed to feed coal at up to 1/4-TPH, which describes the 1/4-TPH coal hydrolysis facility integrated onto a VTS structure at The Bowl.

A 1979 report authored by Rockwell International ESG references studies in coal, peat, and flash hydrolysis that utilized "rocket engine techniques" to achieve rapid mixing-reaction at optimum temperature and residence time, under DOE Contract EX-77-C-01-2518. In addition, the document references subsequent reactor development programs under DOE Contract ET-78-C-01-3125 for the 4-TPH coal hydrogasification reactor system at the ETEC Bowl Area.²¹

Based on numerous references to DOE Contract EX-77-C-01-2518 by DOE, its predecessor agencies, and its contractors that support the contract's scope of work as related to DOE operations and coal gasification facilities at The Bowl, it is reasonable to expect that DEEOIC will carefully consider and compare the totality of information provided. There appears to be a basis for DEEOIC to reverse its determination that DOE Contract EX-77-C-01-2518 was insufficient to establish DOE proprietary interests in coal gasification processes at The Bowl.

Rockwell International Publication, c. 1970's

A publication by Rockwell International (c. 1970's) provides information about the company's areas of research and development at various locations throughout the U.S. The company states that, at the time of the document's publication (under contract with DOE), the company had advanced the development of two processes for the extraction of clean-burning gas from coal at SSFL. A description of the processes was provided.²²

One of the processes involved a molten salt mixture at a high temperature. Based on the description of the process, the timing of the publication, and other related documentation, it is reasonable to conclude that Rockwell International was describing the 1-TPH PDU that began in 1976 under DOE Contract E(49 18)-2342, which provides a detailed description of the Molten Salt Coal Gasification (MSCG) Project at The Bowl.

The second DOE-sponsored process referenced the Flash Hydrolysis PDU, and stated that the company had relied on technology developed by NAA for rocket engine injectors and NASA propulsion concepts, in order to power a 100-TPD (Ton Per Day) advanced reactor system. Based on additional documentation cited herein, it is reasonable to conclude that Rockwell International's publication was referring to the 4-TPH Reactor slated for completion in 1979, at the VTS-3 rocket engine test stand structure.²³ A photograph of a rocket engine test fire at the VTS-3 test stand (The Bowl) was provided by Rockwell International, alongside a diagram of the coal gasification concept. (Please see following page).

²⁰ Bechtel National, Inc., "Reactor Performance During Rapid-Rate Hydrogasification of Subbituminous Coal," by M. Epstein, T.P. Chen, and M.A. Ghaly. Document: 23_3_Miami Beach_09-78_0168.pdf

²¹ Rockwell International, Energy Systems Group (ESG), "Experimental Investigation of Peat Hydrogasification," by F.D. Ranier, L.P. Combs, and A.Y. Falk. Document: Vol-24_3-0005.pdf

²² Rockwell International, Energy Systems Group, Company Publication, c. 1970's. Document: Energy Systems Group.pdf

²³ Internal Letter, Rockwell International - ESG, Re: "One-Quarter-Ton-Per-Hour Coal Hydrolysis Conversion Test Facility." September 15, 1978 / Jeffs-Iacobellis. California Department of Toxic Substances Control (DTSC) Historical Document Archive. Document: HDMSI00012824.pdf

The second process, flash hydrolysis, uses Rockwell rocket engine-injector technology for extremely rapid thorough mixing of pulverized coal and 2000°F hydrogen. The product is either a high Btu, pipeline quality gas or a combination of gas and liquid fuel, depending on process variables. A 100-ton-per-day advanced hydrogasification reactor system designed by the division is to be built at the field laboratory for process testing.

Advancement of the process toward full commercialization is the objective of a working agreement between Rockwell International and Cities Service Company which has long been active in laboratory development of the technology.

Flue Gas Desulfurization

A dry desulfurization and particulate removal system is Rockwell's solution for air-polluting emissions from plants burning coal or oil that contain sulfur.

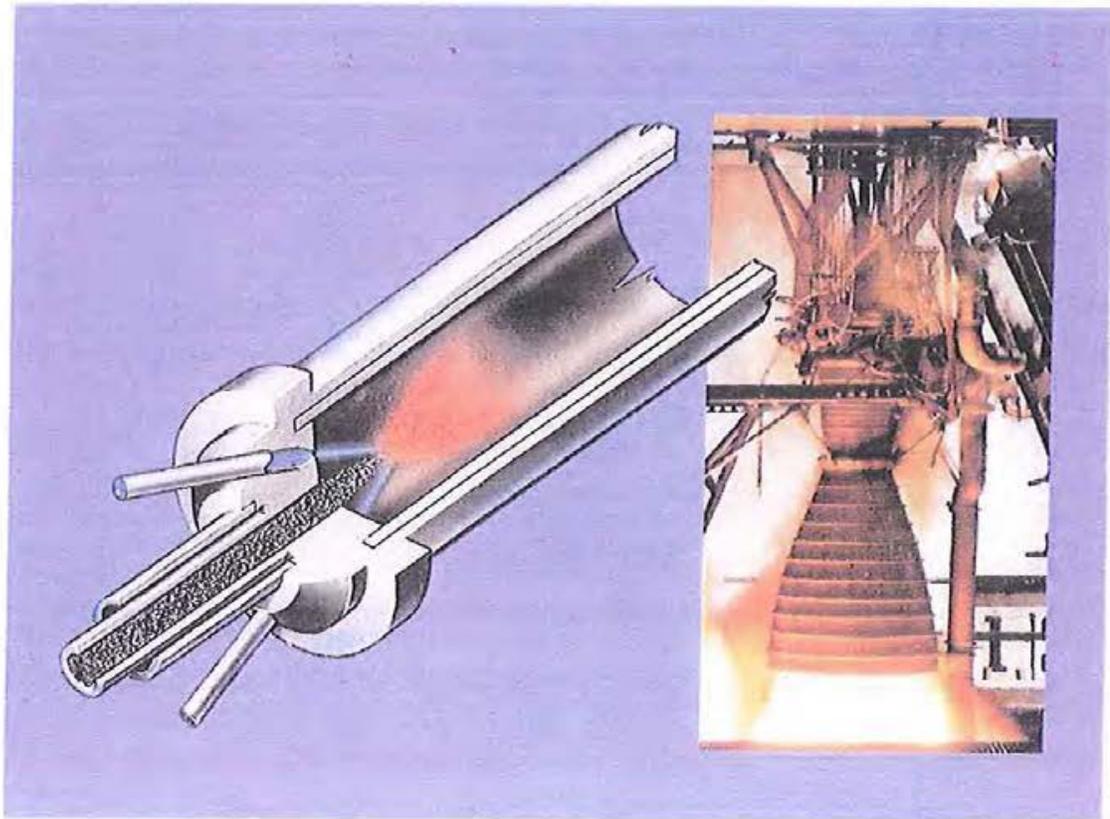
Two commercial system applications of the process are under construction at U.S. coal-burning power plants. A group of five utilities has contracted for the installation of the innovative dry-scrubber system at the Coyote Station near Beulah, North Dakota. Rockwell and the Air Pollution Control

Division of Wheelabrator-Frye, Inc. are supplying the system as a joint venture project. Rockwell will supply the scrubber system for sulfur dioxide removal from the 410 megawatt plant, including Stork-Bowen spray dryers, and Wheelabrator-Frye provides fabric filter collectors. A similar, smaller system is being installed on an industrial boiler in Maryland for the Celanese Corporation.

Rockwell's dry flue gas desulfurization system has also been selected for demonstration in an Environmental Protection Agency project. In this project, the absorbent material is regenerated and recycled, minimizing solid or liquid waste disposal requirements. EPA has authorized the Empire State Electric Energy Research Corporation (ESEERCO), a group of eight New York utilities, to install the Rockwell system on Niagara Mohawk's Huntley Station near Buffalo, New York. In addition to EPA and ESEERCO, support for this project is expected from the New York State Energy Research and Development Administration and the Electric Power Research Institute.

Environmental Monitoring and Services Center

An important part of the Division, the Center is active worldwide in every phase of environmental



Rocket engine technology applied to advanced coal gasification and liquefaction processes

Mid-1980's Commemorative Book by RI: "Rocketdyne: 30 Years of American Excellence"

A commemorative publication by Rockwell International described coal gasification operations under contract with DOE, indicating that the company and DOE had commenced two energy development projects involving the extraction of clean-burning gas and liquid hydrocarbons from coal, *before 1973*. Again, the company featured a description of NAA rocket injector concepts and NASA propulsion technology to describe coal gasification operations at former Bowl Area rocket engine test stands.²⁴

1990: RI-DOE Action Description Memorandum: SABER Operations at The Bowl

In 1980, Rockwell International-ESG issued an Action Description Memorandum to address a new project for ETEC at The Bowl: the Steam Accumulator Blowdown Evaluation Rig (SABER), a Large-Scale Steam Valve Test Facility (LSSVT). There are indications that the facility was used to support DOE's Kalena / Power-PAK reactor research programs and other Area IV operations/facilities.

The SABER's purpose was to conduct large-scale steam valve tests to demonstrate performance. The Action Memo resulted from an agreement with DOE for ETEC to provide steam-valve testing services. It was classified as a development project. According to the Memo, a search had been conducted throughout SSFL for a test facility that could supply the steam flow and steam quality conditions required for the valve tests.

The search identified that the VTS-3 test stand at The Bowl would be the only existing site that could meet the required conditions. In addition, Rockwell International stated that the test system design, procurement, construction, and management had been carried out by ETEC and that The Bowl was located in Area I on DOE optioned land.²⁵

The Action Memo provides a detailed diagram of SSFL that shows ETEC facilities located at Area IV and at The Bowl in Area I. An enlarged diagram of The Bowl is provided, showing its facilities and structures used for DOE-ETEC operations. The Action Memo describes Rockwell International's site permit for the possession and use of radioisotopes covering the use of the gamma densitometers in the LSSVT. An "Authorization for Use of Radioactive Materials or Radiation Producing Devices" (Authorization Number 152) was issued. DOE's documented use of radioisotopes or radiation-generating equipment outside Area IV should be noted.

In addition to the VTS-3 test stand, the SABER utilized several of The Bowl's existing buildings and structures. The Memo acknowledges that VTS-3 was formerly used as a rocket engine testing facility and a coal gasification testing facility that had been allocated to a DOE contract with the Morgantown Energy Office for use in a coal liquefaction process development project.

²⁴ Rockwell International, "Rocketdyne: 30 Years of American Excellence," commemorative book. Document:

²⁵ Department of Toxic Substances Control (DTSC) Historical Document Archive, "Steam Accumulator Blowdown Evaluation Rig Large Scale Steam Valve Test Action Description Memorandum," Rockwell International, 1990. Document: HDMSF00019780.pdf

Document Citations:

1. ETEC letter from F. W. Poucher to A. J. Adduci of DOE-SAN, "WFO Checklist and Revision B to Field Work Proposal ID #0951 (E-88-4), Large Scale Steam Valve Test", 88ETEC-DRF-295, December 21, 1988.
2. "Geotechnical Investigation, ETEC Kalena Cycle Plant, Rockwell International, Santa Susana, California", Gorlan and Associates, Soils Foundation Engineers, dated June 24, 1989.
3. VCAPCD letter to Rockwell, "Re: Authority to construct # 0271-110", 89ETEC-DRF-1435, July 19, 1989.

1991 DOE Tiger Team Assessment of ETEC

A 1991 map of "ETEC Operations" published by the DOE depicts ETEC facilities at SSFL, and shows that Area IV and The Bowl at Area I were considered to be ETEC. The map includes a diagram of Area IV with an inset diagram of The Bowl in Area I. The map specifies that these locations are specific to ETEC, and that the facilities listed as "Govt." were considered to be DOE Facilities.²⁶ (See map, p. 18).

1991 Report of Telephone Conversation - Area I SABER / APTF

On October 3, 1991 Rockwell International generated a Report of Telephone Conversation wherein emissions from the SABER and the Advanced Propulsion Test Facility (APTF) were addressed, along with related excursions at the Sodium Components Test Facility (SCTI) located in Area IV.

There are indications that the SABER, Advanced Propulsion Test Facility (APTF, Area I) and the SCTI (Area IV) operations were supportive to one another to meet various contract schedules in research and development, and that the excess emissions posed continued problems for the company in compliance with existing regulatory standards. Based on the internal report and distribution list that included SSFL departments in Area I and Area IV, and the recipients included in the report, it is reasonable to conclude that ETEC operations in Area I and Area IV were intimately intertwined based on a need to meet specified contractual obligations to DOE.²⁷

1992 ETEC Environmental Protection Implementation Plan (EPIP), Revision C

In 1992, Rockwell International wrote to DOE-ETEC in reply to ETEC correspondence (92ETEC-DRF-01940), the "ETEC Environmental Protection Implementation Plan (EPIP), Rev. C," to provide its annual update to the EPIP, pursuant to DOE Order, DOE 5400.1. Revision C covered the EPIP from November, 1992 to November, 1993.²⁸

DOE Order Number DOE 5400.1 (Chg.1, 6/29/90), "General Environmental Protection Program," established environmental protection and restoration program requirements, authorities, and responsibilities to ensure that DOE operations were in compliance with applicable Federal, state, and local environmental protection laws and regulations, Executive Orders, and internal department policies. Chapter III of DOE 5400.1 required that each field organization prepare a plan for implementing the requirements of the Order by no later than November, 1989 and update the plan annually. ETEC provided the EPIP for the DOE Operations at SSFL. Section 1.5.5, "Facility Programs, SCTI Programs, General Programs / Advanced Planning" states that site departments perform Program Management activities related to the Development & Testing, and Environmental Restoration activities required by DOE. The scope of responsibilities included the Liquid Metal Research (LMR) programs and generally any on-site tests, depending on the customer and the type of test. Environmental restoration activities at Area IV and The Bowl in Area I were scheduled in accordance with EPIP, as required by DOE. (See Map, p. 19).

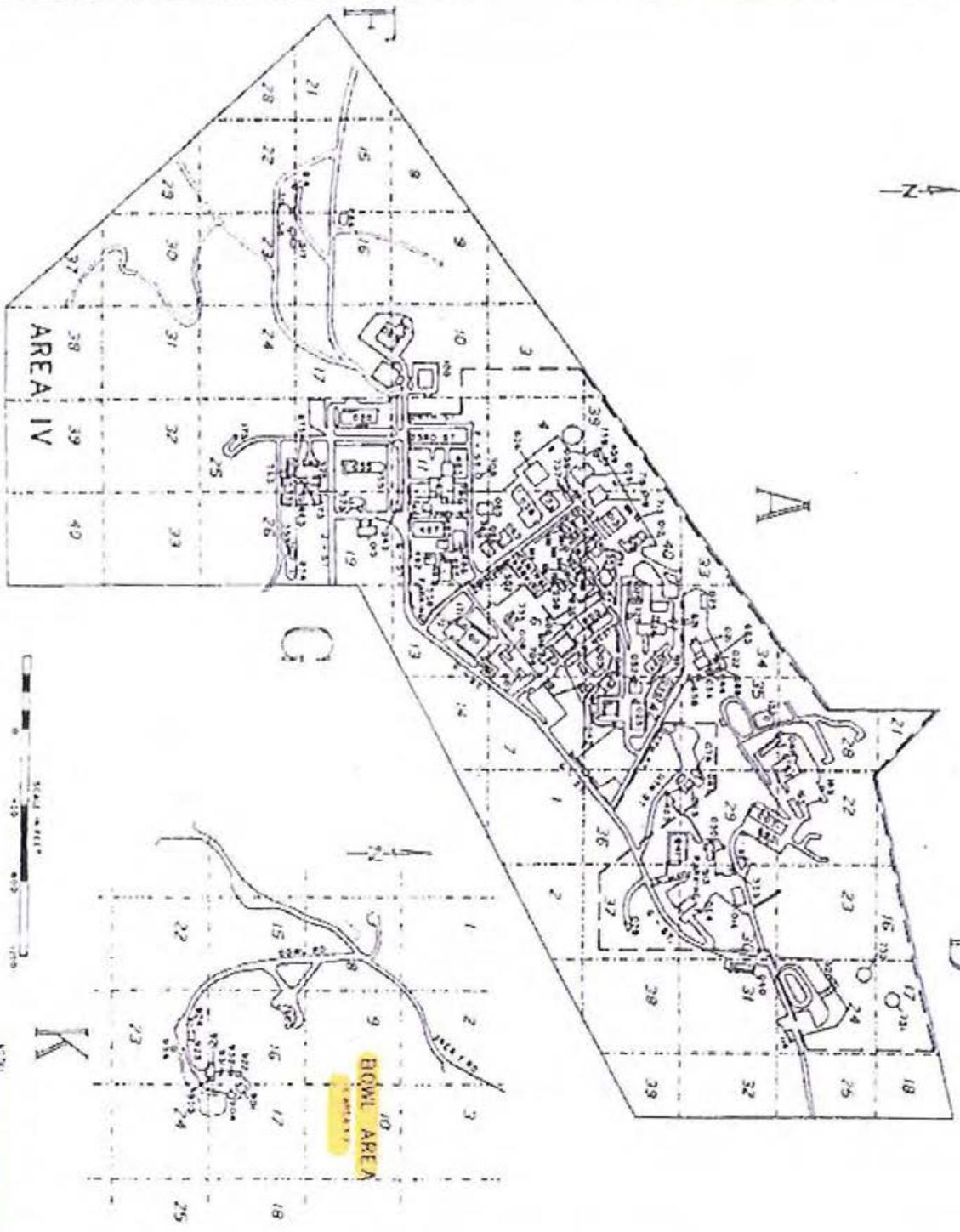
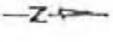
²⁶ U.S. DOE Office of Environment, Safety and Health, "Tiger Team Assessment, Energy Technology Engineering Center," 1991. ETEC Site Map - Area IV / Area I, The Bowl, page 28.

Document: DOE_EH-0175_ES&H_Tiger_Team_Assessment_of_ETEC.pdf

²⁷ Rockwell International, Environmental Protection, "Report of Telephone Conversation," Bill Flynn, Air Quality Engineer, Ventura County Air Pollution Control District, October 3, 1991. BNA Document #BNA00293309, California Department of Toxic Substances Control (DTSC) Historical Document Archive, Document: HDMS00425825.pdf

²⁸ Rockwell International, ETEC Internal Letter to Robert LeChevalier, DOE-ETEC. Refer to: 92ETEC-DRF-1940. Subject: ETEC Environmental Protection Implementation Plan (EPIP), Rev. C. November 18, 1992. Please see PDF pages 62 (Appendix I, Figure 1-A, document page I-58) and PDF page 65 (GEN-AT-022, Rev. C, Appendix II, document page II-61). Boeing North American (BNA) Document #: BNA01261268. California Department of Toxic Substances Control (DTSC) Historical Document Archive, Document: HDMS00413923.pdf

SANTA SUSANA FIELD LABORATORY AREA IV



K

BOWL AREA

APPROXIMATE COORDINATES

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PROJECT	REVISION	DATE
FACILITIES IMPROVEMENTS		
DATE	BY	APP'D
2011	AVL	AVL
2012	AVL	AVL
2013	AVL	AVL
2014	AVL	AVL
2015	AVL	AVL
2016	AVL	AVL
2017	AVL	AVL
2018	AVL	AVL
2019	AVL	AVL
2020	AVL	AVL
2021	AVL	AVL

SANTA SUSANA FIELD LABORATORY AREA IV

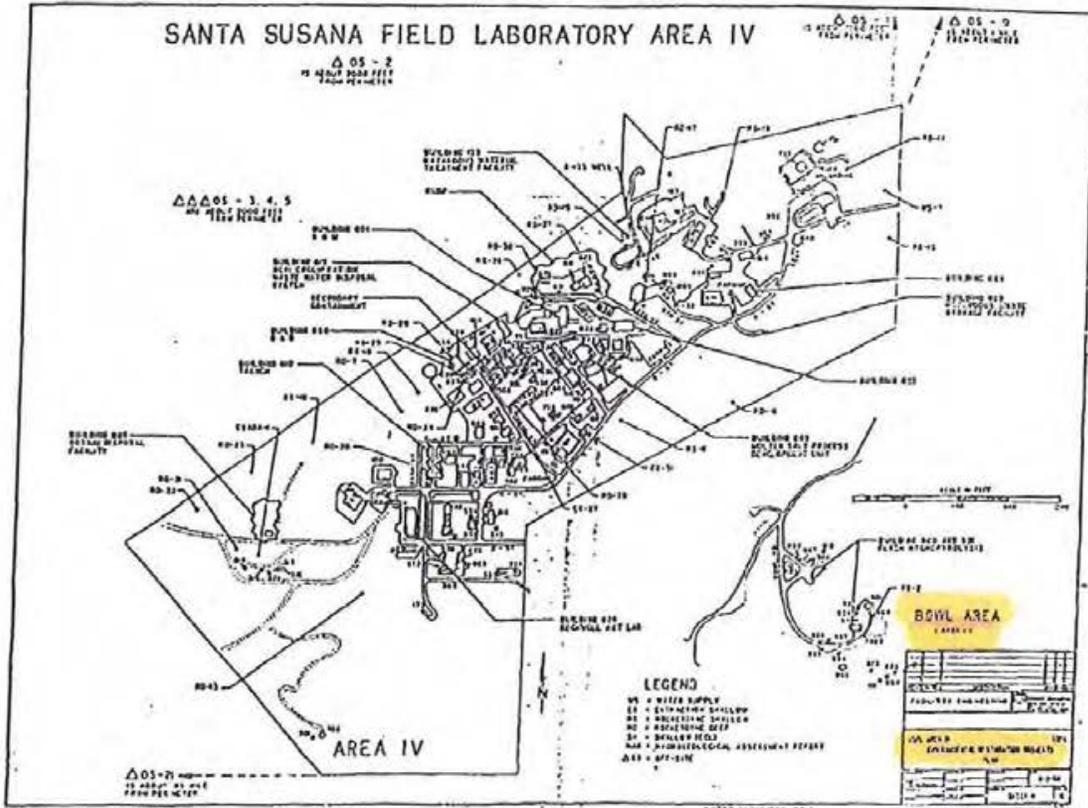


Figure A.1 SSFL Area IV



BNA01261329

HDMSe00413984

The EPIP describes ETEC's site-wide responsibilities that included SSFL Areas I, II, III and IV and ETEC's utilization of Rockwell-Rocketdyne's administrative functions, services, and Environment, Health and Safety Department. In addition, ETEC represented the Division in all matters involving regulatory agencies, and ensured compliance with regulations that included DOE Orders.

The EPIP states that ETEC's SSFL operations provided management and operation of facilities, maintained the required permits and pollution abatement equipment, assisted Rockwell-Rocketdyne's emergency response personnel in remedial actions involving spills and emergency response actions in any area of SSFL, provided appropriate documentation under the National Environmental Policy Act (NEPA) to DOE (as required by DOE Order), provided management of hazardous waste during the storage retention period, and worked under the oversight of DOE.

It should be noted that the EPIP contains no reference or provision to suggest that ETEC operations were restricted to, or confined within Area IV. Rather, ETEC's active role on a *site-wide basis*, in a variety of DOE-sponsored activities, is described in detail.²⁹

1992: Boeing North American's (BNA) Description of Operations at The Bowl, SSFL Area I

A 1992 document generated by Boeing North American (BNA) describes The Bowl Test Area as the first rocket engine test facility constructed at SSFL, located in the southern one-third of Area I, and comprised of three rocket test stands; the Bowl Retention Pond; the Bowl Skim Pond; and a control center. In addition, the document states, "Two inactive coal gasification facilities remaining from circa 1970's DOE programs [that] are located (one each) on a test stand and at the control center," and describes supportive operations for coal gasification at Building 4005, located in Area IV.^{30 31}

1995: BNA Document - "29 DOE Buildings"

An undated document generated by Boeing North American (BNA01837452) and titled, "29 DOE Buildings, Smith Briefing / 30 bldgs on IL's from ETEC," depicts ETEC-DOE buildings at SSFL and includes The Bowl VTS Test Stands and Steam Generator facilities. It should be noted that the document was generated by Boeing.³²

2005: Pratt & Whitney Rocketdyne / DOE Advanced Single Stage Gasifier Development Program

In 2005, Pratt & Whitney Rocketdyne presented at the Gasification Technologies Conference. With a PowerPoint presentation, the company detailed the "Pratt & Whitney Rocketdyne / DOE Advanced Single Stage Gasifier Development Program." The presentation was prepared with the support of DOE, under Contract Award No. DE-FC26-04NT42237.

The PowerPoint presentation features photos of the Rockwell International coal gasification PDU systems that had been integrated onto VTS test stands at The Bowl. As Pratt & Whitney Rocketdyne is considered to be a corporate successor to NAA, it assumed operations at Canoga Facility in 2005 and continued

²⁹ *ibid.* PDF page 27, document page 20, Section 1.5.3 General Programs & Advanced Planning

³⁰ Untitled, Boeing North American (BNA) Document #: BNA040606123. "Bowl Area: Bowl Retention Pond, Bowl Skim Pond, and Bowl Test Stands," November, 1992. California Department of Toxic Substances Control (DTSC) Historical Document Archive, Document: HDMSP01739799.pdf

³¹ California Department of Toxic Substances Control (DTSC) Historical Document Archive, Boeing Document #: BNA01375901. See PDF pages 3 (Bowl, Area I) and 28 (Building 4005, Area IV). Document: HDMSE00399178.pdf

³² Boeing North American (BNA) Document #: BNA01837452. California Department of Toxic Substances Control (DTSC) Historical Document Archive. Document: HDMSE00375150.pdf

contractor operations at DeSoto Facility and SSFL (Areas I-IV). According to Boeing, workers rotated between Canoga, DeSoto, and potentially SSFL Area IV while employed by Pratt & Whitney-Rocketdyne, but did not necessarily have any change to job codes or other administrative records that would reliably document worker location. DEEOIC may consider a need to further evaluate DOE interests at Canoga and DeSoto Facilities, after DOE operations and interests were presumably discontinued.³³

Beryllium, Tritium, and Radionuclides at SSFL Area I

Tritium, beryllium, and radionuclide contamination has been discovered in Area I, further calling into question DOE's claims of Area IV exclusivity. In 1964, NAA conducted a study of beryllium handling, operations, and potential contamination at Happy Valley (Area I). The study was to evaluate personnel exposure to beryllium and the extent of residual contamination in the work area. The study revealed that the maximum average integrated personnel exposure was greater than 96% of the allowable exposure, and that residual beryllium contamination exceeded the recommended level in several locations.

The study also concluded that the calculated exposure was inaccurate to an unknown degree because the amount of beryllium in some of the samples exceeded the upper limits of the analytical techniques used for measuring. Thus, the study concluded that the estimated exposure level of "greater than 96% of the allowable exposure" was likely a grave underestimation. The study observed that up to 1964, airborne dust generated by beryllium operations had not been controlled, and employees had never been provided with respiratory protection.^{34 35 36 37}

In 1983, the Department of Industrial Relations Division of Occupational Safety and Health Radiation Health Unit contacted Rockwell International-Rocketdyne regarding an incident investigation under California Radioactive Material License Number 0273-70.³⁸

The division indicated that on August 17, 1983 an investigation was conducted relative to the company's unauthorized possession of tritium in an amount and form that had not been authorized under the current license. The investigation and environmental survey to determine the scope of tritium contamination revealed that, beginning in 1979, unauthorized amounts of tritium gas in amounts that exceed 1,000 microcuries had been received periodically at locations in Area I that included CTL-III and the LETF, both of which were part of DOE-ETEC operations in 1979.

³³ Pratt & Whitney - Rocketdyne: "DOE Advanced Single Stage Gasifier Development Program," October 12, 2005. Document: PRW_SSG.pdf

³⁴ Internal Letter, NAA: Study of Hybrid Motor Operations, Happy Valley, SSFL. Boeing North American (BNA) Document #162885. California Department of Toxic Substances Control (DTSC), Document: HDMS00420866.pdf

³⁵ Rockwell International, 1981. "Be Tanks," documenting Beryllium drainage offsite, and contamination to Area I locations. Boeing North American (BNA) Document #BNA02770421. California Department of Toxic Substances Control (DTSC) Historical Document Archives. Document: HDMS00423553.pdf

³⁶ NAA, Industrial Hygiene & Safety, September 1, 1966; Propellant Engineering Laboratory, Area I. Rockwell International Document #SS-SS72-00591. California Department of Toxic Substances Control (DTSC) Historical Document Archives. Document: HDMS00028757.pdf

³⁷ Internal Letter, Rocketdyne, Re: Beryllium Contamination at Happy Valley, 9/9/65. Rockwell International Document #RI-SS72-00504. California Department of Toxic Substances Control (DTSC) Historical Document Archives. Document: HDMS00028751.pdf

³⁸ California Department of Industrial Relations Division of Occupational Safety and Health, Radiation Health Unit to Rockwell International, August 26, 1983. Boeing North American (BNA) Document #BNA02657088. California Department of Toxic Substances Control (DTSC) Historical Document Archives. Document: HDMS0410222.pdf

SSFL Area I Bowl Energy Center: Added / Removed from Site Exposure Matrix (SEM)

The DOE-ETEC Bowl Energy Center Coal Gasification Facility was added to the SEM as a "covered facility" under EEOICPA. Presumably, its addition was based on the knowledge that coal gasification operations are known DOE processes, and the premise that all DOE operations at SSFL were confined to Area IV.

It has been established that coal gasification and its associated processes are considered to be DOE operations at other Rockwell International facilities (i.e. Hanford and Rocky Flats). It is likely that The Bowl was assumed to have been located in Area IV, based on the current understanding that DOE operations were confined to that area of the site.³⁹

In 2016, The Bowl was removed from the SEM. Upon inquiry, the SEM Public Administrator indicated that The Bowl's removal from the SEM was based on its location in Area I.⁴⁰

It appears that a clear action is called for, based on documentation establishing that coal gasification and its associated processes are DOE operations. In addition, DOE ownership, control, and proprietary interests in the facilities at The Bowl are well documented. It would be reasonable to expect that the next course of action would be to accept that DOE conducted operations outside of Area IV, and to classify Area I, The Bowl, as a DOE Facility under EEOICPA, accordingly.

Conclusion

CORE Advocacy supports EEOICPA's administration based on accurate characterizations of site and worker history as documented by DOE, its predecessor agencies, and its contractors. EEOICPA's ability to function should never be hampered by incomplete, erroneous, or summary information that fails to acknowledge the scope of DOE operations or processes that may have put employees at risk.

DOE-ETEC operations at SSFL Area I, The Bowl, are reflected in contractual agreements and technical documents that provide robust and descriptive accounts of facilities that were constructed, modified, integrated, operated and remediated by and on behalf of DOE. It appears that, based on the documentation provided, SSFL Area I The Bowl fulfills criteria under 42 USC § 7384I (a) and (b).

Documentation shows that DOE-contractor employees routinely participated in DOE-ETEC operations at Area I (The Bowl) and Area IV, in service to DOE-sponsored programs, and that the employees fulfill eligibility criteria under EEOICPA. Based on the 2005 eligibility decision, any employee of NAA, its divisions or corporate successors that can *establish employment by the company at a location where DOE conducted operations* may be potentially eligible for EEOICPA.

CORE Advocacy respectfully requests that ETEC operations at SSFL Area I, The Bowl, be acknowledged and that SSFL Area I, The Bowl (also known as The Bowl Energy Center or ESG Bowl), be considered a DOE Facility and "covered area" under EEOICPA.

CORE Advocacy respectfully requests a detailed response from DEEOIC and DOE. Should DEEOIC and DOE determine that contractual agreements documenting DOE operations and interests in coal gasification at SSFL Area I, The Bowl do not sufficiently establish DOE proprietary interests, CORE Advocacy respectfully requests a well-reasoned narrative that explains exactly how the contractual agreements, and other information provided, are deficient.

³⁹ ETEC Bowl Energy Center - Site Exposure Matrix. Document: SEM_BowlArea.pdf

⁴⁰ ETEC Bowl Energy Center - Site Exposure Matrix. Document: SSFL_SEM_Bowl_Removal.pdf

It is a privilege to submit this information on behalf of SSFL personnel and EEOICPA claimants at large. In addition, please note that this document contains new and relevant information likely to have bearing on EEOICPA Case ID [Redacted]; a DOE-contractor employee and documented participant in DOE operations at The Bowl who has been summarily disqualified from EEOICPA.

Based on the information herein, the employee appears to have sufficiently provided ample evidence of employment by the company at a location where DOE operated. It is my conviction that this employee, and his coworkers whose job duties for DOE involved coal gasification processes at The Bowl, deserves inclusion to EEOICPA based on employment for an established DOE contractor and involvement in established DOE processes, at a location that fulfills criteria under EEOICPA to be considered a DOE Facility and a "covered area."

CORE Advocacy has provided a comprehensive bibliography and a link to download cited documents in their entirety, from a secure folder at Dropbox, at the end of this document. In addition, the following supplemental information pertains to issues of potential and relevant conflicting interests that are likely to have created difficulty in identifying DOE operations at SSFL, verifying eligibility among DOE-contractor employees, and ensuring that verified eligible claimants receive relevant dose reconstruction outcomes. The agencies that are tasked with administration of EEOICPA should be made aware of any potential issues, even those that may exist outside of EEOICPA legislation, that may compromise the claims process for SSFL workers so that the agencies can respond accordingly.

It is CORE Advocacy's privilege to provide information that may assist DEEOIC and DOE in ensuring that EEOICPA is administered fairly and effectively for the workers of Santa Susana Field Laboratory (SSFL) and its associated facilities.

Sincerely,



D'Lanie Blaze
CORE Advocacy for Nuclear & Aerospace Workers

Additional Information: Conflicting Interests / EEOICPA Eligibility Issues

CORE Advocacy's priority is to ensure that EEOICPA functions as intended for SSFL employees; claim adjudication should be based on factual information regarding site history and employee records. However, there are compelling indications that conflicting interests outside of EEOICPA have hampered the claims process for an unknown number of SSFL EEOICPA claimants. The problems appear to be rooted in summary information provided by the contractor at various phases of the claims process, from initial Employment Verification requests to the information included in the SSFL Site Profile used for radiation dose reconstruction.

It should be noted that DOE and Boeing remain engaged in a decades-long, controversial environmental cleanup of SSFL. Both stand to benefit by downplaying the scope of DOE operations and activities at SSFL that may have resulted in environmental contamination, worker exposure, and potential health risks to employees and surrounding communities. By diminishing the perception of DOE activities and worker exposure at the site, environmental cleanup obligations stand to be significantly lessened.

There are growing indications that DEEOIC's eligibility decision and the dose reconstruction process for SSFL workers have been undermined, effectively reducing the number of workers found to be eligible for consideration and the number of approved claims under EEOICPA, thus supporting a perception of minimal DOE activities or operations that may have posed health risks to workers of the site.

DEEOIC's Eligibility Decision and Dose Reconstruction for SSFL Workers

In 2005, DEEOIC indicated that it had been DOE and Boeing's "goal" to limit EEOICPA eligibility to a smaller subset of NAA Atomic International employees of the 90-acre subset portion of Area IV known as ETEC. DOE and Boeing's effort to enforce a restrictive eligibility policy resulted in a three-year "disagreement" with DEEOIC, resulting in all claims associated with SSFL (and its affiliated sites) being placed into "pending" status. Between 2002-2005, a number of sick SSFL workers died while their EEOICPA claims were effectively stalled.

A 2015 FOIA Request revealed that between 2002-2005, DEEOIC attempted productive dialogue with DOE and Boeing in an effort to resolve conflict about which workers should be eligible for EEOICPA. Likely unaware of any potential for outside conflicting interests that may influence the quality or completeness of information provided by DOE or its contractor, DEEOIC permitted Boeing to weigh in on the creation of eligibility policy during the deliberative process and to provide guidance on the adjudication and outcome of 38 open EEOICPA claims in various phases of adjudication. In addition, the contractor was permitted to define the types of information it would provide to DEEOIC in response to Employment Verification requests used to establish SSFL worker eligibility to EEOICPA.⁴¹

On September 7, 2005 DEEOIC found that the entirety of Area IV would be considered the "covered area" and that any employee of NAA, its divisions (Atomic International or Rocketdyne), or corporate successors that could provide documentation of employment by the company at a location where DOE operated could be potentially eligible for EEOICPA. DEEOIC clarified that, based on the original facility contract and worker relation, it may not be possible to make a distinction between which NAA employees had performed DOE-related job duties in Area IV.

As part of the Employment Verification process, DOE and Boeing were directed to provide DEEOIC with factual information showing actual employee work locations at SSFL, to assist DEEOIC in verifying worker presence in Area IV and establishing eligibility to EEOICPA. DEEOIC further clarified that one effect of the eligibility decision would be that EEOICPA would be made available to more workers than previously anticipated.

⁴¹ FOIA 790488. Document: FOIA 790488.pdf

Since 2014, it has been established that Boeing's Employment Verification summaries have never been sufficient to reliably or accurately establish eligibility based on Area IV employment, because the summaries do not provide factual information depicting employee work locations at SSFL. Rather, Boeing's summaries routinely **obscure covered employment** that meets DEEOIC's 2005 eligibility criteria. In many cases, years or decades of eligible employment is disqualified in error, based on the Boeing summary.

As a result of relying on Boeing's summaries to make eligibility determinations, an unknown number of SSFL workers have been systematically disqualified from EEOICPA in error. It is not uncommon to discover that, based on thorough review of employment records, the employee actually meets eligibility criteria and should have been considered eligible to apply for EEOICPA. In addition, there are growing indications that the summaries may have been constructed specifically to identify only Atomic International ETEC employees that DOE and Boeing originally intended to be eligible for EEOICPA, while effectively obscuring covered employment among many of the additional employees that DEEOIC included in the 2005 eligibility decision.

While some workers are disqualified from EEOICPA in totality, others with readily-identifiable covered employment depicted in the summaries (primarily Atomic International ETEC employees) proceed through the adjudication process to dose reconstruction. However, in numerous instances, many of the eligible workers are also discovered to have years (or decades) of additional covered employment that have been effectively obscured by the summary, and disqualified from EEOICPA. Thus, of those workers who are determined to be eligible for EEOICPA, many of the eligibility determinations are incomplete.

In a growing number of instances, claims are adjudicated in their entirety based on an incomplete depiction of covered employment, and sent to dose reconstruction with only a partial characterization of radiation exposure history. As a result, the perception of the employee's exposure may be dramatically diminished and the probability outcome may be substantially underestimated, since not all covered employment or radiation exposure may be evaluated.

The deficiencies in the Employment Verification process appear to have significantly reduced the number of eligible employees that are considered under EEOICPA, in addition to compromising the quality of claim adjudication and dose reconstruction, resulting in fewer accepted claims. In addition, there are suggestions that information provided by the contractor for inclusion to the SSFL Site Profile was grossly deficient, resulting in a further compromise to the integrity of dose reconstruction.

The SSFL Site Profile appears to have been based predominantly on summary data authored by Boeing and its contractors after 1998. In 2016, CORE Advocacy compared the SSFL Site Profile to the U.S. Environmental Protection Agency's (EPA) 2009 Historical Site Assessment (HSA) and Area IV Radiological Characterization Site (Site Study). The HSA and Site Study were based on EPA's analysis of 1.4 million historical facility documents that had been provided to the EPA by DOE and Boeing in response to several formal information requests. Several conflicts between the SSFL Site Profile and the 2009 HSA were noted.

CORE Advocacy identified what appears to be 50 additional Area IV facilities, several of which were considered to be major sources of radioactivity generation at the site, that had been excluded from the SSFL Site Profile. In addition, all corresponding worker and environmental monitoring data associated with facility operation, and incident reports documenting potential releases and worker exposure, were excluded. On review of the SSFL Site Profile, it seems that only limited information was provided, which pertained to the most significant buildings or operations at SSFL. It appears that all support facilities and lesser-known operations associated with DOE's extensive nuclear and energy research programs at SSFL were excluded.

In some instances, information in the SSFL Site Profile clearly conflicted with information provided to EPA by DOE and Boeing. For example, the SSFL Site Profile contains the contractor's assertion that no radioactive waste was ever incinerated at SSFL. In contrast, Boeing provided EPA with substantive documentation pertaining to Area IV Building 4664 (excluded from the SSFL Site Profile), which functioned for 25 years as a low-level radioactive waste incineration facility. According to EPA, this location was a main source of airborne radioactivity at the site. It is reasonable to conclude that NIOSH would consider this operation to be significant to the application of dose reconstruction, and its exclusion from the SSFL Site Profile may have bearing on the quality of dose reconstruction for SSFL workers. It was one of approximately 50 locations that were not included in the SSFL Site Profile.

The 2009 HSA and Site Study were submitted to NIOSH for evaluation and potential inclusion to the SSFL Site Profile in August, 2016.

CORE Advocacy Recommendations: Historical Facility Documentation

As EEOICPA is a non-adversarial program, claimants deserve decisions that are based on an accurate characterization of site and worker history. Conflicting interests that may exist outside of EEOICPA should never be permitted to derail or compromise a worker's ability to rely on due process under the Act.

Agencies tasked with EEOICPA's administration should remain aware of the potential for conflicting interests to influence information requests and claim adjudication, and take reasonable precautions to ensure accuracy and completeness of information that is used or reviewed during the claims process.

It is reasonable that DEEOIC would need to occasionally rely on information provided by DOE and Boeing. However, based on the consistency of established deficiencies in summary data provided by the contractor, CORE Advocacy respectfully recommends consideration of the following:

- According to the contractor, Boeing maintains detailed employee databases dating back to the 1940's; is in possession of at least 1.4 million historical facility documents that were provided to EPA to conduct the 2009 HSA and Site Study; and Boeing is legally and contractually obligated to provide the information to DOE and DEEOIC in support of the FOIA, Privacy Act, and the EEOICPA. There is likely no need to create summarized information, when the original documentation is available.
- If summary information is provided, any historical records used to create the summary should also be provided, in the interest of accuracy and completeness. This should include any "coded" records, and any prospective "key" required to decode the records. It should be noted that records and codes generated pre-1996 were neither created by, nor considered proprietary to Boeing.
- When a historical record challenges summary information provided by the contractor, particularly when the historical record benefits the claimant, the authentic historical record should take precedent over summarized data.
- Whenever possible, historical records authored by DOE / Boeing predecessors (pre-1996) should be evaluated and considered over any newly-generated summary data.

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speak@COREAdvocacy.org / 818.835.1431 - D'Lanie Blaze, CORE Advocacy.org

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This document was submitted in honor of Santa Susana Field Laboratory (SSFL) employees whose contributions to the Space Race and Cold War are deserving of acknowledgement pursuant to the Energy Employees Occupational Illness Compensation Program (EEOICPA) and congruent with documented site and contractor history.
CORE Advocacy for Nuclear & Aerospace Workers (can be found at
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