BEFORE THE STATE OF WASHINGTON

ENERGY FACILITY SITE EVAUATION COUNCIL

In the Matter of Application No. 2003-01: SAGEBRUSH POWER PARTNERS, LLC; KITTITAS VALLEY WIND POWER PROJECT	EXHIBIT 31 (LP-T)

APPLICANT'S PREFILED DIRECT TESTIMONY
WITNESS # 12: LES POLISKY

Q Please state your name and business address.

A My name is Les Poliskey and my business address is 19700 Janelia Farm Blvd, Ashburn, VA 20147.

Q What is your present occupation, profession; and what are your duties and responsibilities?

A I am employed by Comsearch. Comsearch provides consulting services to commercial and governmental organizations. These organizations include some of the most prominent telecommunication companies; Fox and ABC Broadcast, Sprint, Verizon and AT&T telephone, and Cox, Comcast and General Media Cable. In the governmental area we work closely with and provide services to the Federal Communications Commission (FCC), the Federal Aviation

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Administration (FAA), and the United States Navy and Air Force. We assist those organizations in analyzing impacts of projects such as the Kittitas Valley Wind Power Project on communication system operations. I am Senior Principal Engineer for the Field Service Department of Comsearch. My duties regarding this project were to evaluate potential impact to telecommunication services with respect to the proposed wind energy facility. The telecommunication services evaluated were microwave links (point-to-point stations), off-air television services to the communities in the vicinity of the proposed wind energy facility and wireless telephone services (cellular and PCS). I assisted in the preparation of the Application for Site Certification for this Project.

Q Would you please identify what has been marked for identification as Exhibit 31-1 (LP-1).

A Exhibit 31-1 (LP-1) is a résumé of my educational background and employment experience.

Q Are you sponsoring any portions of the "Application for Site Certification" and "Clarification Information Provided to EFSEC Independent Consultant for EIS Preparation", for the Kittitas Valley Wind Power Project?

A Yes. I am sponsoring the following sections for which I was primarily responsible for the analysis and development:

Section 5.3.3.7		Communications
Clarification Information	Section 5.3.3.7	Communications

Q What exhibits that are part of the Application that you are sponsoring?

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A I am sponsoring the following exhibit to the Application.

Exhibit 14 Telecommunications Obstruction Analysis

Q Are you familiar with these sections of the Application and Exhibit?

A Yes

Q Did you prepare these sections and exhibit, or, if not, did you direct and /or supervise their preparation?

A Yes.

Q Is the information in these sections and exhibit within your area of authority and /or expertise?

A Yes

Q Are the contents of these sections and exhibit of the Application either based upon your own knowledge, or upon evidence, such as studies and reports as a reasonably prudent persons in your field and expertise are accustomed to rely in the conduct of their affairs?

A Yes.

Q To the best of your knowledge, are the contents of these sections and exhibit of the Application true?

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A Yes.

Q Do you incorporate the facts and content of these sections and exhibit as part of your testimony?

A Yes

Q Are you able to answer questions under cross-examination regarding these sections and exhibit?

A Yes

Q Do you sponsor the admission into evidence of these sections and exhibit of the Application?

A Yes

Q Are there any modifications or corrections to be made to those portions of the Application that you are sponsoring?

A No

Q Would you please summarize and briefly describe the studies you conducted regarding telecommunications, your assessment of the impacts of the Project on telecommunications, and any mitigation features that are being proposed.

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A The microwave station obstruction study showed that with the original turbine layout there were twelve turbines that were obstructing five microwave paths as originally planned. When this was pointed out to the Applicant, they modified their design of the facility by eliminating the twelve turbines. Therefore, after the design modification, under the current layout as proposed in the ASC, no turbine would obstruct any microwave link in the area.

The off-air television reception was field measured and analyzed in the area. All of the more populated communities in the area (Cle Elum, Ellensburg, Roslyn, and Kittitas) will still be able to receive most, if not all, of the off-air television broadcast stations with the wind energy facility built. Some areas to the northwest of the wind energy facility may have degraded off-air television to some of the channels they now receive after the wind energy facility is built. However, this sparsely populated area will still be able to receive reception from at least three unobstructed off-air broadcasters. The communities potentially affected in this way are Liberty and Lauderdale Junction. To the north and west of Liberty the signal from the off-air TV broadcasters is weak and this area presently does not have good off-air television reception. Since this area is very sparsely populated and the off-air television reception is now poor, it is not expected that there will be complaints of degraded television reception from residents of this area.

Off-air television reception will be measured after the facility is built. If degradation occurs the Applicant will work out solutions in cooperation with the affected residents.

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Exhibit 31-1 (LP-1)

RESUME: LESTER E. POLISKY

LABOR CATEGORY: Senior Principal Engineer

EDUCATION: Bachelor of Science, Electrical Engineering,
Illinois Institute of Technology, 1958
Master of Science, Electrical Engineering,
George Washington University, 1976

CERTIFICATION: NARTE EMC Engineer
Certificate Number 000272-115

PROFESSIONAL SUMMARY:

Mr. Polisky is a Senior Principal Engineer assigned to the Field Services Department of Comsearch. He is currently working on numerous projects involving engineering issues with respect to the deployment of Mobil Satellite Systems (MSS), Wind Energy Facilities impact on telecommunication operations and the new generation of broadband satellite systems. In his work he specifically deals with electromagnetic interference problems, propagation of RF signals, satellite and microwave system design, RADHAZ, communication site shielding, and field measurements. He has extensive technical experience in the area of electromagnetic interference and compatibility.

Mr. Polisky has been called on to prepare and present "expert witnesses" testimony in various legal proceedings dealing with propagation issues, Radiation Safety, Site Electromagnetic Shielding and Interference Mitigation. Testimony has been prepared for and given in the District of Columbia, Virginia, Massachusetts, Colorado, Michigan, Maryland, and Georgia.

Mr. Polisky has been involved in countless projects involving telecommunication issues over his 40-year plus engineering career. He has evaluated the signal propagation effected by local objects such as terrain, trees, and man-made structures. He has evaluated the propagation of signals from teleports around the country and rooftop installations in downtown Manhattan. He is a member of the National Spectrum Manager Association (NSMA) and chairman of its Working Group 6, the group that deals with the mitigation if interference conditions to various telecommunication systems.

EMPLOYMENT HISTORY:

1998 – Present **Comsearch** **Senior Principal Engineer**

His assignments have included work with the Telecommunication Industry Association (TIA) Joint Working Groups to formulate algorithms and criteria for sharing analyses for

satellite systems and 2 and 18 GHz Fixed Service (FS) terrestrial systems. Consulting work has included the development of a shielding design for Ku-Band Earth Stations, the calculation of interference exclusion zones for ubiquitous earth station terminals and the definition of analysis techniques for systems located in the nearfield of Microwave antennas He was the Comsearch-point of-contact for government system operations through interface with the NTIA and JSC.

1992 – 1998 SENTEL Corporation Principal Engineer

Mr. Polisky participated in sophisticated engineering tasks under SENTEL's United States Navy contracts and provided electromagnetic engineering services for various commercial customers. Navy tasks performed included the analysis and test of the following systems in the shipboard environment; JTIDS, the multi-purpose wire free communication system (WIFCOMM), which included communications for work centers, damage control, and special weapon handling, GPS, INMARSAT, and HAVE-QUICK. He performed RF link-budget analysis of communications from shore sites, submarines, various aircraft, and surface ship, and evaluated the use of satellite communication systems both commercial and military to transfer tactical data from a deployed ship to a land-based headquarters site.

- Engineering and management of the design, installation and test of a digital Microwave data link of two systems for the United States Navy. The first was a four-station system that interconnected Patuxent Naval Air Station, Maryland and the NASA Facility at Wallops Island, Virginia. The digital system featured a fiber optic network with SONET terminals at multiple sites at Patuxent and Wallops Island. The second one was a nine-station system interconnecting the Oceana Naval Air Station, Virginia and Marine Corp Station at Camp Lejeune.
- Design of LAN and WAN communication systems for the networking of portable and man-wearable computers in an automated material management system for the Defense Logistic Agency (DLA) and United States Navy.
- Planning the deployment of KU-Band satellite terminal deployments on United States Navy Ships. Planning included link analysis, hardware selection, shipboard installationlo9cations with respect to coverage, interference and ship's resulting RADAR cross section (RCS).
- Electomagnetic interference and compatibility (EMI/EMC) analysis of the New United States Coast Guard Icebreaker Class, the WAGB 20. Analysis also included hazards due to electromagnetic radiation to personnel (HERP), to ordnance (HERO) and to fuel (HERF).
- EMI analysis for commercial microwave and satellite customers to determine potential interference and hazard conditions at various facilities around the world.

- Analysis and test of the deployment of the Joint Tactical Information Data System (JTIDS), Wire Free Communication Systems (WIFCOM), and the Global Positioning system (GPS) on board United States Navy ships.

1980 – 1992 **(CAT) Comsearch and Chu Applied Technology** **Corporate Officer and Senior Engineer**

Mr. Polisky held the positions of Vice-President and President of these organizations. In that capacity he directed and coordinated measurement and analytical technical projects for the United States Navy and commercial customers. His engineering work for the Navy included electromagnetic interference and compatibility studies for systems on various platforms. His innovative approaches led to the solution of some of the Navy's most complex interference problems. This was dramatically demonstrated with respect to the interference to the Central Control Stations (CCS) on the FFG 7, Spruance and DDG-993 Class Ships. His approach in measuring the electromagnetic fields, both conducted and radiated, in the below-deck environment led to an understanding and quantification of the problem. This understanding ultimately led to the development of a fix, which is now installed, on all ships of these classes. Mr. Polisky worked in the area of electromagnetic radiation hazards, near-field antenna coupling, test plan development, TEMPEST and EMC measurements, computer controlled measurements, development of computer software for the prediction of interference on various platforms. He also participated in a project to use supplemental software as an interference fix for those electronic systems that contain an embedded computer for processing or control.

Mr. Polisky served as lead engineer on the NAVSEA Below-Decks Electromagnetic Survey Study where he developed measurement techniques for the collection of data that was used to develop computer prediction models. He directed the efforts of the measurement and computer personnel to develop useful analytical tools. He coordinated this activity with various Navy groups and private companies to be sure that the technical output of this task was compatible with existing databases, prediction models and measurement techniques. He was actively involved in the Navy's Ship Electromagnetic Compatibility Improvement Program (SEMCIP) as both and EMI problem solver and ship coordinator. Mr. Polisky worked on the HF interference problems to the TACAN, AN/SPS-55 RADAR, and glide-slope indicator. He worked on the MK 92-RADAR system noise-interference to HF receivers. He developed a test plan for the inter ship EMI problem between the FFG-23 and FFG-25.

Mr. Polisky developed special electromagnetic measurement procedures for the Fleet Electromagnetic Readiness (FEMR) Program. He directed teams of engineers and technicians from various companies and government agencies in the performance of highly complex electromagnetic measurements. As project engineer, his work involved MIL-STD-449, -461, -462 and –469; and VDE, EIXPRS, NITA. FDA, and FCC regulations. Mr. Polisky has been on board approximately 200 Navy ships including all classes from nuclear aircraft carriers to minesweepers. On these ships he has collected measured data with respect to radiation hazards, RF burn, EMI, electromagnetic pulse

(EMP), electromagnetic emission control (EMCON), and electronic system compatibility and assessment data for use by ship designers to correct problems on existing ships and integrated into the design of new ships. He was responsible for reporting the results of his EMI work to EMCABS. He assisted the team tasked with revising MIL-STD-469. Mr. Polisky developed an instrumented EMP test that was used by the FEMR program to collect shipboard EMP data.

1963 – 1980 Atlantic Research Corporation Entry Level to Senior Engineer

Mr. Polisky participated in the SEMCIP and FEMR programs developing specialized Electromagnetic measurement procedures and then performing the measurements on board ship. He participated in the weapon susceptibility testing at Rome Air Development Center (RADC). He performed a design study for a Tropospheric Scatter Communication system for deployment in Southeastern Asia. He was involved on various projects designed to quantify system degradation caused by interference to RADARs communication systems and electronic warfare sets. He performed MIL-STD-461 () testing in the laboratory and field. One notable project was the tests run on the uninterruptable power supply (UPS) for the Social Security Computer System build by Exide Inc. The testing was first performed at the Exide plant in Raleigh, North Carolina and then at the Social Security Facility outside Baltimore, Maryland after installation. He performed many electromagnetic site surveys to characterize the electromagnetic environment (EME) of a given area. The most notable of these was an aerial survey over the State of Florida to determine by measurement the best frequency band for a range safety communication system to be used by NASA. To perform this survey, he designed a package of test equipment that he could operate from the cabin backseat of a Cessna Skyland aircraft. The test antenna was installed on the underside of the aircraft. The setup was calibrated before the survey by flying test paths versus known radiated signals in the frequency bands of interest. The actual survey was conducted over a one week period. Flight paths covered both coasts and the interior of the state. Mr. Polisky conducted studies on cardiac pacemakers and intrusion alarms to determine their susceptibility to electromagnetic interference. He was a member of the Navy's spectrum signature measurement team.

1960 – 1963 United States Air Force Ground Electronics Officer

Mr. Polisky served as the RADAR maintenance officer of the 647th Radar Squadron, Manassas, Virginia. He was responsible for the direction of the maintenance effort to insure the normal operation of the Squardron's RADAR and support equipment.

PUBLICATIONS:

Mr. Polisky has written a number of papers on the subject of electromagnetics and information technology. The following is a list of the papers:

"An Empirical Formula for the Near-Field Microwave Antenna Coupling"

"Airborne Electromagnetic Environment Survey"

"The Commercial Applications of Non-Ionizing Electromagnetic Radiation Hazard level Standards"

" Electromagnetic Interference on Cardiac Pacemakers"

"Electromagnetic Radiation for heating of Tissue in Biological and Medical Applications"

"Navy Tactical Communications, LINK 16 Tactical Advantage in the 21st Century"

"Wearable Computers – Information Tool for the 21st Century"