COMMUNICATION SITE MANAGEMENT PLANS

HUALAPAI PEAK

HAYDEN PEAK

POTATO PATCH

ADDENDUM

ATTACHMENT 1

REPORT OF FINDINGS

Relating to: Contract Order No. AZ950-PH5-0359

Issued by: Bureau of Land Management
Arizona State Office
P. O. Box 16563
Phoenix, AZ 85011

For: Bureau of Land Management
Kingman Resource Area
2475 Beverly Avenue
Kingman, AZ 86401

Submitted by: William F. Lieske, President
EMR CORPORATION
22402 N. 19th Avenue
Phoenix, AZ 85027

Subject: Evaluations of Hayden Peak and Potato Patch Communication Sites, approx. 10 miles S. E. of Kingman, Arizona

Report date: July 26, 1985

Certification:

The report contained herin is submitted by William F. Lieske, President of EMR Corporation, a registered subsidiary (db/a) of Echo Mountain Realty, Inc. (an Arizona Corporation). The contents of this report are, to the knowledge of the undersigned, correct in all respects and are original in content.

All representations, observations, recommendations and suggestions contained in this report are based on the observations made by the signator, those materials provided by the Bureau of Land Management in the form of exhibits for study, materials provided by persons or organizations experienced and related to the subject(s) involved, and any referenced materials as noted in the body of this report.

Signed: William F. Lieske
William F. Lieske

Forward

On July 1, 1985 a contract was issued to EMR Corporation by the Bureau of Land Management to conduct evaluations of the Hayden Peak and Potato Patch Communication sites near Kingman, Arizona, to include submitting an analysis of and a report detailing existing uses, condition of the sites, and recommendations for site improvements.

In cluded in the services to be provided is to be an evaluation of each site potential and the potentials for development of high power FM and TV facilities. In particular, the application of Mohave Sun Broadcasting for a space on the Hayden Peak site is to be evaluated along with describing the possible conflicts with existing users at the site should their application be granted.

A complete folio of information was provided with the contract approval. An analysis and history of the area was included along with detailed maps, photographs and other information relating to the sites, plus copies of all information pertaining to the matter up to the contract date.

It is found that the Bureau is placed in the position, as administrator of the land to make a decision as to whether or not the use of a location at the Hayden Peak site as applied for by Mohave Sun Broadcasting of Kingman should be approved. Moreover, the Bureau is faced with the need for developing proper and equitable site use plans, technical standards and standards of usage that will meet the best public need.

In that there are two factions in the current situation, the FM Broadcast applicant and the general group of existing site users, each of which are adamant in their position, any decision made by the Bureau will meet with objection.

The contractor will attempt to provide information that may guide the Bureau to its decision in the current matter and to assist the Bureau in its future administration of the sites concerned. Further, the decision under study and the standards that will be developed should have impact on other sites under Bureau administration in this District and others.

Review of Exhibit Materials

The history of land ownership of the Hayden Peak and Potato Patch sites, part of the Hualapai Mountain Park is noted with interest. In particular, the deeding of the site areas to the U. S. Bureau of Land Management arose from the fact that several of the established site occupants use of the land was for private convenience, leading to the transfer of ownership to BLM, under whose jurisdiction such use may be administered.

The development of the Hualapai Mountain Technical Standards Committee and its proposed standards is considered by the writer to be particularly valuable. Where joint usage of a communications site is concerned, a set of ground rules is absolutely needed. Further, full cooperation between all users and the site adminisrator is required if the interests of all parties are to be best enjoyed.

The well developed maps, photographs and exhibits provided as part of the BLM information package were studied in detail. Each of the offerings of the proponents will be reviewed and commented on in this report.

Site Visitation

The writer visited both sites during a field trip on on July 9, 1985. Observations made were as follows:

1. Installations in place at the Potato Patch site are of a more recent vintage and appear to be professional and meet standards of good remote communications facility practice.

All enclosures are clean and secure, towers or other antenna supports are sturdy, grounded and generally well maintained in terms of expected or normal character. No excess materials were noted at or near the installations.

2. The Hayden Peak site, in direct contrast, shows numerous instances of poor site practice. This site is typical of sites that have been developed for multiple useage over a comparatively long time without the benefits of minimum standards to determine installation methods and practices.

In deference to this, it must be recognized that usage of the Hayden Peak site is highly diversified, including VHF, UHF and microwave communications facilities along with FM and TV translator and satellite downpath factilities. It is obvious that these facilities have been developed over many years as economically feasible to meet the objectives of the organizations concerned as installed. Further, the topography of the land there is severe, literally built on "a pile of rocks." Severe wind, ice and snow conditions have contributed to damage to buildings, towers, poles antennas and feedlines as evidenced by their condition and from the numerous bent and twisted structural items found lying about.

It may be estimated that to renovate all installations at this site to reasonable minimum standards would require the investment of time and money amounting to many times the existing capital value of the existing facilities. Due to the extreme ruggedness of the land, positions of the various installations, etc. along with the limited time per year that reasonable access to the site is possible, a wholesale upgrading of the site would take at least three years.

Our observations were made only external to all equipment enclosures, since personnel representing all users were not available to provide access into them. It may be concluded that where the external character of installations is sub-standard, similar practice will be found in the nature of installation of the radio equipment, lines and other facilities within them. Accordingly, the full impact of site vulnerability to problems arising from outmoded practices can only be suggested.

The impressions of the writer are that future steps to upgrade the Hayden Peak site are necessary before any new installation there is approved. Since there appears to be no accessable locations reasonably suited for location of more equipment housings and antenna support structures that meet accepted practices of relative antenna positioning for control of mutual interferences, the placement of any new tower structure without a total engineering plan will only serve to make a proper site renovation project more problematic.

Review of the individual exhibit offerings.

Mohave Sun Broadcasting Application

This material is representative of a more or less typical professionally prepared FCC application package. In this case, this is an application to modify a previously issued FCC construction permit from the location known as Radar Hill in Kingman to the Hayden Peak location.

To justify the application for location change, the applicant considered and eliminated locations at Radar Hill, Union Pass and the Potato Patch. To summarize the justifications,

the applicant chose the following:

1. To meet FCC requirements for Class C operation.

2. To save an estimated $44,000 in tower costs if the Potato Patch site were to be used.

3. To save the costs of building commercial power to the Union Pass location.

4. To benefit from the availability of existing Commercial power at the Hayden Peak site.

Further justifications for the Hayden Peak choice included theproposal that the public will benefit from improved (broadcast) radio service in the Kingman area and that "no probable" impact will be effected on the population in the area with regard to social and economic aspects or impact on rural life-styles.

It is to be noted that should the applicant be interested in providing broadcasting service to the Kingman area, such can be accomplished through location of his transmitting facility at a much lower elevation than 8,390 feet, that of Hayden Peak. Irrespective of the exhibit materials included in the FCC application as to demographics of the area, it must be concluded that the applicant wishes to secure the use of the Hayden Peak site to secure an audience far outside the area defined.

Based on the simple fact that Hayden Peak now provides reception of FM signals for translation from greater than 200 miles away, the area of coverage to be expected from the

over 8,400 ft. antenna position proposed will cover an area much greater than proposed, even with the permissable 25,226 watts of effective radiated power.

It may be immediately inferred that the applicant envisions access to an audience outside the "Kingman area" but contiguous thereto such as Parker, Laughlin, Bullhead City, Wikieup, Williams and other communities, thus building opportunities for sponsorship sales bases outside of the Kingman market.

Clearly, the main justifications used for the selection of the Hayden Peak location are based on (1) costs to the applicant in his primary investment, and (2) opportunity for greater economic gain through a large base of population to be secured.

Considerable work was done to analyze the impact on operations of the existing Hayden Peak users, in the form of a computer intermodulation calculation, discussions of the causes, the effects and possible cures for interference caused by the presence of the proposed transmitter there. It is to be noted that the position of the applicant's consultant is to minimize the depths of such interferences, using mathematic relationships and broad references to "well established filtering techniques" as the means to solve them. The applicant summarized his presentation with a statement that assistance will be provided in determining the best solution to any interference problem experienced as a direct result of the proposed installation, and "will bear the responsibility for correction of any problem....." It is state further that: "Every effort will be made to accomplish multi user operation at the site which is satisfactory to all parties involved."

Report and recommendation by Lannis J. Simpson

The report proposes several alternatives for BLM to consider:

1. To make no change in past procedures, allowing the sites to degrade in nature.

2. To develop a a site plan having minimum standards designed to "clean up" the sites.

3. To incorporate alternative #2 along with controls to be imposed on future site users, or

4. To implement alternative #3 along with a two site approach under which high and low power equipment will be separately located.

Mr. Simpson's conclusions and recommendations amount to an appeal to BLM to protect established users from problems that might be the result of future installations and to require justifications from future applicants in the best interests of the majority.

Arizona Dept. of Public Service Recommendations

All departments and agencies served by the Potato Patch site are cited along with a report of actual vehicular coverage surveys conducted along six highway routes within Mohave County. Calculations were made to predict the level of noise that might be generated by the proposed FM transmitter provided that the maximum level of noise permitted by the FCC rules would be present.

Based on the coverage tests as compared to the predicted noise maximum, a severe reduction of coverage was predicted. Other

discussion of the traditional causes of interference was set forth including reference to direct intermodulation in which the FM transmit frequency would be a direct constituent and other valid points relating to effects on test equipment based on actual field experience at other sites.

The writer's comment on this exhibit is that the presentations are technically correct and well founded. Should the noise level be as high as permitted by FCC rules, the loss of communications shown would result. Whether or not this level ofnoise would exist would be determined by several factors, including the type and quality of the transmitting equipment installed, its level of maintenance and adjustment, and what types of special filtering that the operator would apply to it.

A point not made in this presentation, but applicable to the situation is that the FM station would be operated by remote control, unattended by technical personnel except when technical adjustment or repairs would be required. Due to the extreme problems of access to the site, even under the best of weather conditions, any situation in the condition of the transmitter, its antenna system and associated hardware resulting in noise or interference problems might take considerable time to correct, resulting in impaired communications in DPS systems until corrected. During time of most sever weather conditions, the need for communications particularly by Highway Patrol and Highway Maintenance purposes is the most critical, and the time necessary to correct the problem would be the greatest. This, in addition to the possibility of some degradation to all systems on a general

basis would support the position of DPS in ther concerns.

Arizona Public Service Company Response

Similar technical factors and considerations as those offered byArizona DPS were offered along with discussions as to causes and effects. Concerns as to the impact to programs of maintenance and repairs to power line facilities and the impact on employee safety are valid and supported by past experience.

In the APS letter and the copy of the letter of objection filed with the Federal Communications Commission, numerous possibilities of interference were pointed out. There is valid cause for concern that of the several thousand possible interference possibilities, at least one incident of true interference would be present.

El Paso Natural Gas Company Response

The style and appeal of this response is outstanding. It is eloquent and brings a number of points to view. Since El Paso Natural Gas occupies a location on Hayden Peak most adjacent to the proposed FM transmitter location, and since their operating frequencies are nearest to the FM frequency than any other land mobile user the concerns as to probable destructive interference to their system are most understandable. The discussion as to the practicality of moving antenna systems to be supported on the proposed KZZZ tower is correct in its conclusions. This respondent also suggests the establishing of separate high power and low power equipment locations. The writer will comment further on this idea, later in this report.

U. S Department of Energy Response

The discussions presented are similar to all other objectors and are well presented. The KZZZ consultant's data is openly challenged. DOE is also located on Hayden Peak and quite close to the proposed FM transmitter location, which amplifies the causes for concern. It is possible, since DOE is a Federal Government agency that some impact on the FCC's position in such matters could be brought to bear, as suggested.

Summary of responses

Based on technical considerations, the offerings of the broadcast radio applicant, through his consultant and those of all present users are diametrically opposed. From the standpoint of qualifications to discourse on these matters, all respondents are sufficiently qualified by virtue of academic or experience related work. It becomes clear that there is the factor of under or over statement in the justifications of both parties in the argument toward securing what is desired in the case of the new applicant and in the protection of what is now held in the case of the existing users.

It is the writers opinion, based on the data contained in the KZZZ application, that the preparer's depth of experience in day to day problems in mixed site (high and low power) situations is not as complete as the accumulated (and unanimous) training and experience of the objectors.

The interests and motives of each faction must be considered on their respective merits, as well. The broadcaster is motivated to secure the greatest available market for his product

with the least amount of capital investment, whereas, the established site users are concerned with protection of their investments and/or ability to communicate without the forced need to add costs and complications that otherwise might not be necessary.

One might question the true meaning of service to the public as seen by one faction or the other. From the broadcaster point of view, service to the public means the dissemination of entertainment in the form of his chosen program format along with those items of news, announcements, etc. that he may elect to broadcast to that segment of the population who may choose to tune in his station. For the governmental agencies concerned, two-way radio communications is a necessary tool to their mission, be it law enforcement, maintenance of public facilities or emergency operations. In the case of the public utility company, communications are important to their franchised service, such as in the distribution of electrical power, natural gas or telephone services, and in the timely maintenance or restoration of service of these services. In the case of the commercial suppliers of two-way radio communications services, translated FM and TV or cable TV services, the variety of services provided are to be considered either individually or collectively as important in value to the public as the programming on one broadcast station.

It must be acknowledged that some detrimental effects would be the result of locating the proposed station as applied for. It is agreed by all parties, and in concurrence with the writers opinion that the number of interferences, the severity of each and the costs to correct them, if correctable

by any means cannot be predicted with accuracy prior to the actual installation of the proposed FM station. Considering the present condition of the Hayden Peak site, the proposed location on the site for the FM station and other factors, the probability of interference problems serious enough to require immediate expenditure of time and resources is quite high.

Should the permit be granted to Mohave Sun Broadcasting and the station be installed, costs will immediately be incurred in determining the exact type of mixes that produce the interfering signal(s) and hardware must be applied in order to reduce these to below harmful or nuisance value, and the loss of communications resulting until corrected will become a burden on the user. Should uncorrectable problems emerge, the prior user will either suffer a loss unless the operation of the broadcast station is terminated.

This scenario is one that could very probably develop. It is doubtful that the new applicant could risk the investment necessary to make the full installation subject to such a possibility. Is is also highly improbable that the existing users, as joined, would agree to anything less. As such, it is entirely possible that the existing users, either individually or as a body, might seek to uphold their established quiet enjoyment through legal action should any other form or condition of grant be made to the new applicant. Should the application be denied, and the applicant elect legal action, it would be expected that a lengthy proceeding would result. In either case, it might be expected that no permits or changes of any kind would be allowed until determination by the court, thus tying up the sites for an indeterminate

period. During this period, other possibly acceptable applicantswould be denied the opportunity to secure services that they might otherwise enjoy.

Mohave Sun Broadcasting has other alternatives available despite the pending FCC application on file. The established users have only the alternatives of risking loss of important communications and/or expecting unscheduled expenses of labor and funds to correct unknown levels of problems that might be caused for the convenience of an outside party whose presence would accrue no visible benefit to them.

In the writer's opinion, based on the nature, use and elevation of the Hayden Peak and Potato Patch sites, the following use limitations and requirements are justified:

1. The maximum generated transmitter power for either site should be limited to 120 watts, and the maximum effective omni-directional radiated power should be limited to 750 watts. Directional effective radiated power should be limited to 2,500 watts.
2. The installation of any radio transmitter or antenna system exceeding these limitations should be 15,000 feet or more displaced from either site.
3. Any fixed facility producing an effective radiated power of 50,000 watts or greater should be displaced 25,000 feet or more from either site. The exception should be in the cases where an altitude displacement of 2,500 feet more exists, the horizontal displacement should be 20,000 feet or greater.

4. Where a "high power" site is established, low power users may occupy it, however, at their own risk with regard to interference to their receiving facilities independent of source.
5. Any communications site administered by BLM shall have a site plan under which minimum standards of building, tower, transmission line, electrical power routing, grounding of all elements, site cleanliness and right of access shall be determined.
6. The standards of site minimums shall be set forth to best serve the common interests of each site, according to its intended usage, eg: High Power, low power, translator, mirowave, etc., should such specified uses be deemed necessary to isolate and protect the class of site user.
7. Each established site shall have formed an association of users. Membership in the association shall be mandatory and shall cause each member to agree to meet and uphold standards for the site, cooperate in all matters relating to identifying and correcting interferences of all types, and maintaining all equipment to satisfactory operating standards.
8. Within each association, there shall be a functioning interference committee composed of at least three (3) technically competent individuals. An interference comm- member may be a member of the association member entity or an agent (or contractor) retained by an association member.
9. Where disagreement as to responsibility for or action required to correct an interference problem arises, the decision of the majority in action to be taken shall rule.

10. Should action determined by the technical committee be not acted upon within a reasonable time, the continued use of site facilities may be cancelled by the site administrator (BLM).
11. Any site plan must be acceptable to the administrator (BLM) and shall be modified as needed to maintain as near an interference free operating condition and as determined by the majority vote of all parties.
12. The right to use any facility shall not be granted to any other unless covered by the site standards or approved by the site administrator and all association members.

The foregoing, in principle, should be a good basis for the development of site standards and operating committees. The following points are offered to be included in successful site technical standards.

As repeated throughout the exhibits provided on the KZZZ matter, and covered in the enclosed booklet "Intermod Control" and copies of site standards proven to be workable, the need for proper building, tower, antenna, line and radio equipment installation, equipment and system grounds, use of ferrite isolators, cavity filters, low pass, harmonic filters and other interference reduction techniques must be made mandatory. This applies equally to established site as well as new site construction.

The writer can cite numerous site installations that support from a few to more than a hundred individual equipments with minimum problems through the application of these techniques. The use of transmitter combining and receiver multicoupling techniques is to be highly recommended, since the number

of system antennas is thus minimized, permitting greater displacements between them to afford required decouplings.

Full cooperation between all site occupants is absolutely needed. Effective site management cannot be carried on without it. The most severe problems are found at sites on which no common ownership or management exists. Often, adjacent users are competitors and refuse to cooperate with each other. When problems arise under this situation, everybody loses!

Either the site administrator, or one or more association participants should have a well designed computer intermodulation calculating program. When a problem occurs, much time is saved in finding the I. M. "hits" most probable in the interference. Also, should a new applicant for space appear, or an existing user wish to add or change equipment operating frequencies, the compatability with existing systems can readily be checked. Should problems be suspected, the technical committee can more readily analyze the potential for true problems and determine what method of treatment should be provided.

Additional background information.

Reference is made to certain investigations made within the past 60 days to determine sensitivity of typical land mobile communications receivers operating proximity to FM broadcast stations. These are as follows:

Case #1 Measurements of effective sensitivity of one (1) receiver operating on 42.98 MHz., three receivers operating

in the 152 to 156 MHz. range and two receivers operating on 457.250 and 459.325 MHz. at a site known as Shaw Butte, located in north Phoenix. These receivers are parts of two-way communications systems located approximately 2,200 ft. from a 100 KW ERP FM broadcasting station. The FM transmitting antenna is at approximately the same elevation as the average of the antennas feeding the respective receivers tested. These measurements were made at times of day and on a Sunday, when normal land mobile transmitter activity at the site was at its lowest level.

Results of these measurements are tabulated below:

	Reference Receiver Sensitivity (1)	Effective Receiver Sensitivity (2)
42.98 MHz.	0.6 uv.	1.55 uv. (3)
152.960 MHz.	0.4 uv.	0.90 uv.
151.925 MHz.	0.35 uv.	1.65 uv. (4)
457.25 MHz.	0.45 uv.	0.85 uv.
459.325 MHz.	0.50 uv.	2.95 uv. (5)

(1) 12 dB SINAD measurement made with 50 ohm termination at receiver antenna, only.

(2) 12 dB SINAD measurement made with normal system antenna in place.

(3) Music and noise sourced to the FM station verified by listening on portable FM receiver. 1.65 uv. of signal required to "quiet" receiver and derive SINAD measurement.

(4) A raspy noise was observed at lower signal levels. The signal level recorded necessary to secure a valid measurement.

(5) Level of signal necessary to secure valid measurement.

The SINAD measurement technique most closely approximates the level at which fully intelligible voice modulated signals can be received. The approximate 50% loss of sensivity between full receiver capability and that measured with the normal system antenna connected on the two receivers not referenced can be attributed to accumulated site noise, including broad band noise radiation from the FM transmitter. At least one of the five receivers is being directly effected by an intermodulation of which the FM transmitter signal is a component.

Case #2 On a field trip to South Mt. Park, various observations were made using a spectrum analyzer equipped with a "Yagi" antenna that is aimable, atop a 10 ft. mast. Choosing several typical VHF and UHF band centers as analyzer swept frequency centers, noise levels as high as -70 dBm were found. These measurements were taken at distances from 300 to 500 feet displaced from existing 100 KW ERP FM transmitters. This particular site is an extreme case, having 5 VHF and 3 UHF full power TV transmitters, at least 7 full power FM transmitters and perhaps 200 active land mobile transmitters in place. The tests were made on a Sunday morning, which is a relatively low activity time for the various two-way transmitter equipments. When moving to the approximate center of the installations, noise levels of up to -40 dBm were found. It is noted that the VHF and UHF receivers in operation on South Mountain all suffer some desensitization, and some regularly are subjected to severe interference from time to time.

Case #3 At a site in North-eastern Washington state, complete lock-up of a VHF receiver was being caused by a mix involving a 100 KW FM transmitter signal mixing in the output stage

of a 10 watt educational FM station translator. The 100 KW FM station is more than 40 miles from the site common to the offended VHF receiver and the translator. The installation of a dual section isolator with 2nd harmonic filter on the translator transmitter solved the problem.

Case #4 The fifth harmonic of a 100 KW ERP FM transmitter mixed with the carrier frequency of a 479.6 MHz. telemetry transmitter located near an airport. The resulting I. M. signal made air to ground communications on 122.8 MHz. (airport unicom frequency) generally unusable. The FM station was some four miles distant. The solution included placing an isolator on the telemetry transmitter with a cavity filter and another pass filter at the aeronautical communications receiver. Total costs about $2,000 including labor, materials and installation.

These cases are cited to show that under typical situations, the high power signals of FM transmitters can cause unique interference problems. In these cases, solutions were found. In case #3, for example, had the FM high power transmitter been co-located with the other equipment, it is doubtful thatthe problem could have been solved.

There are many sites at which high power FM and TV equipment co-exist, South Mountain and Shaw Butte in Phoenix being just two local examples. In each case, however, some problems are found. Experience has shown that where the land mobile equipment exists first, there are (with few exceptions) complaints after a high power installation is placed in service. In general, where the high power facility exists first, the two-way equipment is secondary and installed subject to conditions available. If it will not perform, the user must then find another site.

These experiences and case histories strengthen the case for separating high power and low power equipments to different sites, particularly where the maximum of available performance is required by the land mobile user in his mission.

It is to be noted that in the majority of cases in which land mobile and high power FM or TV stations co-exist, the two-way coverage requirement is usually local, ie: 20 to 25 miles in maximum expected range. Where extended ranges are needed, such as in the systems operating from the Hualapai Mt. sites communications up to 75 miles or more, over mountainous terrain is possible and necessary. Should the range of any of these systems be reduced for any reason, there are no visible alternatives. As stated before, the FM applicant does have alternatives.

The most logical solution to the problem before the Bureau would be to establish another site, if one exists, on Bureau land for high power installations, and to continue the Hayden Peak and Potato Patch sites as low power, two-way sites. As such the site standards and association requirements should be written into the use plan, with a reasonable period of time allowed for existing users (particularly on Hayden Peak) to bring their facilities up to standard. Should this be the Bureau's decision, it is proposed that the best long term interests of the public will be served.

Attachments will be found as follows:

1. Book, "INTERMOD CONTROL"

2. WWIC Engineering Standard #6 - A site standard that has proven effective in site management in the Northwest area of Washington State.

3. Copy of a letter (continental Electronics) discussing the availability and costs of high power filters for reduction of noise output from high power FM transmitters.

4. Copy of a letter (Mt. Constitution Sites) relating to a history under which two-way radio and high power FM and Television equipment may co-exist at a common site.

5. Copy of an agreement (Telecommunications Site Rental) as used by a broadcast facility owner to permit site and tower usage by two-way communications users. Note the provisions relating to Amateur Radio System users.

Permission has been granted to the writer to use the above reference material. The book "INTERMOD CONTROL" was authored by the writer, and copyrights are owned by Weisner Publishing. Its purpose in for information and guidance in areas of site management. Portions of the remaining attachments may be used as background sources and for guidance in the development of site standards and site management plans.

BACKGROUND AND CREDENTIALS OF THE CONTRACTOR

William F. Lieske has been continuously active in the field of radio communications for more than thirty-six years. His academic training includes electrical engineering majors at the University of Washington, Virginia Polytechnic Institute and Oregon State College in addition to specialized training in advanced electrical, electronics and computer theory. Training in advanced microwave and radar techniques and micro-electronics, including microprocessor design has been acquired within the past ten years.

Experience includes construction of AM and FM broadcast stations, functioning as Chief Engineer and Staff Engineer for three affiliates in the Pacific Northwest area, Chief Engineer and Manager of a statewide land mobile communications system, Sales Engineer for a major supplier of land mobile and microwave equipment, Manager of Engineering and Operations of a company engaged in the design and manufacture of intermodulation control devices and systems, filters and antennas, and for the past five years President and General Manager of EMR Corporation of Phoenix, Arizona, specializing in thedesign and manufacture of intermodulation and electromagnetic interference products and job consulting in the land mobile communications industry.

A member of the Institute of Electrical and Electronics Engineering Society for more than 25 years, and the Society of Broadcast Engineers for 15 years, an active real estate broker's license has been held in Arizona for 9 years.

He is the designer of a number of devices applicable to the field of intermodulation interference control and land mobile system components, including advanced ferrite circulators and isolators, filter devices, transmitting and receiving combiners, R. F. power measuring and monitoring instruments and antennas. He has, from time to time, authored technical articles and books, some of which have gained acceptance as information sources in the field of electromagnetic interference identification and control.

Through training and experience in both disciplines concerned under the contract project, and with knowledge and experience in land use matters, it is proposed that he is well qualified to undertake the project concerned.

varian

Continental Electronics
a Division of Varian Associates
P. O. BOX 270879 DALLAS, TEXAS 75227 (214) 381-7161
CABLE ADDRESS: CONTRONICS TELEX ADDRESS: 73 - 398

June 25, 1985

Mr. Clay Freinwald, C.E.
Radio Station KNBQ
P.O. Box 5200
Tacoma, WA 98405

Dear Mr. Freinwald:

In response to your letter of June 21st, I called Leonard Oursler at ERI in Newburgh, Indiana. Leonard told me that he had visited with you sometime last week about this matter.

As we would use ERI to design and furnish whatever type of filtering you would need for your transmitter, I can only repeat what Leonard told me.

First off, he suggests that you contact dB Products regarding the filtering that the two-way users would need to protect their services from possible interference from your signal.

As to their signals degrading your signal, Leonard tells me that they could provide a band pass filter with steep skirts for your frequency of 97.3 MHz. He did say that you, or your consultant, would need to determine precisely how steep those rejection curves or "skirts" needed to be.

Because of the power involved, Leonard wasn't sure of the cost of the bandpass filter, but estimated it at somewhere between $10,000 and $12,000.

If and when you decide to move to the new site where the two-way stations operate, I'm sure that Tom Cauthers will be happy to work up a firm proposal on a bandpass filter in the event you decide you need one. And, dB Products should be able to furnish you with price and performance specifications on filters which you might decide to purchase to satisfy the two-way people that they won't suffer as a result of your nearby signal.

Sincerely,

Gene Randolph
Sales Support Mgr.
GR:ak

cc: Tom Cauthers

Western Washington Cooperative Interference Committee

APRIL 1983

WWCIC ENGINEERING STANDARD #6

All communications fixed transmitter installation shall include the following devices to minimize spurious radiations and intermodulation products and shall meet the following installation specifications:

1. Transmitters in the 25 to 50MHz range shall employ an isolator providing an isolation of at least 25db followed by a low pass filter, then a band pass device providing a minimum of 30db attentuation 1MHz removed from the operating frequency.

2. Transmitters in the 66 to 88MHz range shall employ an isolator providing an isolation of at least 25db followed by a band pass device providing a minimum of 20db attentuation 1 MHz removed from the operating frequency.

3. Transmitters in the 130 to 174MHz range shall employ an isolator providing an isolation of at least 25db followed by a low pass filter then a band pass device providing a minimum of 25db attentuation 1 MHz removed from the operating frequency.

4. Transmitters in the 400 to 470MHz range shall employ an isolator providing an isolation of at least 25db followed by a low pass device providing a minimum of 15db attentuation 1Mhz removed from the operating frequency.

5. Transmitters in the 806 to 960MHz range shall employ an isolator providing an isolation of at least 25db followed by a band pass device providing a minimum of 15db attentuation 1MHz removed from the operating frequency.

The following general engineering standards shall be observed:

1. A band pass device (cavity, crystal filter, etc.) is recommended at the input of all receiving devices. A cavity or other protective device should be placed between the antenna and the receiver to protect an antenna from seeing a non-linear device such as the crystal filter or the first R.F. amplifier in a receiver.

2. Where duplexing is used, use of the cross notch type duplexer should be avoided.

3. Double braided or double shielded solid outer conductor coaxial cable must be used for all connections.

4. Jacketed coaxial cable is required, unjacketed transmission line of any type is prohibited.

5. Use of type "N" connectors is preferred over other types, every effort should be made to eliminate the use of adaptors.

6. All equipment is to be installed in enclosed metal cabinets that are grounded and shielded. Grounding is to be done with copper strap or heavy braid, wire grounds and three prong plugs are not substitutes.

7. VSWR of transmitting systems should be checked periodically, after the isolator, VSWR on the load port of the circulator reduces the isolation capability of the device.

8. When securing transmission lines to towers, black nylon/plastic, non-metalic ties should be used. In the case of large lines, use of stainless steel/galvanized hangers is permitted. No hardware of any kind that will rust is permitted. Cad. plating is not a substitute for hot dip galvanizing. Use of wraplock or metal banding of any kind is precluded. In all cases transmission lines are to be supported in accordance with the manufacturer's recommendation

9. All loose wire or metal objects are to be removed from the tower and site.

10. All FCC license equipment shall be operated in full accordance with all applicable rules and shall have a current license posted on said equipment.

11. All equipment shall be labled with the owners name and a current 24-hour per day contact telephone number, (service agency is acceptable).

12. Every effort should be made to protect the equipment from lightning damage. Feed-through lightning protectors should be used on all coaxial cable connections to equipment enclosures. Gas Gap and MOV protectors should be used on all control/Audio/Telephone and AC power connections.

INTERFERENCE POLICY STATEMENT

In the event Radio Interference occurs and the above standards are complied with, additional devices, isolators, filter, cavities, etc. May be required to solve specific problems.

Involved systems, if at the time are not fully in compliance with these standards will be asked to so comply, immediately.

TELECOMMUNICATIONS SITE RENTAL

AGREEMENT

THIS AGREEMENT is made and entered into by and between TRIBUNE COMMUNICATIONS COMPANY, Site Management Division, a Washington corporation, herein referred to as "TRIBUNE", and _____ _____ of _____, herein referred to as "USER", for the purpose of providing facilities for USER'S communications equipment as described in Schedules A through D, attached, at the TRIBUNE'S communication facility known as _____ located at _____.

Section 1. Term.

The term of this agreement shall be a period of _____ years(s), starting the _____ day of _____ and ending the _____ day of _____, 19 ____.

Section 2. Use Charge.

USER shall pay TRIBUNE a monthly use charge in the amount of $_____ per month, payable on the first of each month during the term hereof, for the use of space on TRIBUNE'S communication facility for _____ _____ _____ _____

Use charge for any period during the term hereof which is for less than one month shall be a prorated portion of the monthly installment herein, based upon a thirty day month. USER shall have the option of paying TRIBUNE its monthly use charge annually, in advance. If USER elects this option, the annual use charge shall be in the amount of $_____. All payments required by USER shall be made without deduction or offset to TRIBUNE COMMUNICATIONS COMPANY at Post Office Box 11000, Tacoma, Washington, 98411.

Section 3. Electrical Power.

During the term of this agreement, TRIBUNE will provide USER with commercial electrical power supplied by a utility company to operate its equipment installed hereunder, in return for which

USER agrees to pay TRIBUNE, in advance, $_____ per month or $_____ annually. TRIBUNE will also provide to USER standby emergency power to the limit of TRIBUNE'S on-site capacity. USER and TRIBUNE understand and agree that the furnishing of electrical power hereunder is solely a matter of convenience for USER and the charges herein are based solely upon an estimation of the cost to TRIBUNE of providing such power and do not take into account the assumption by TRIBUNE of any collateral risk. The parties understand and agree that TRIBUNE shall not be liable in any way for any claim for damages or loss for failure of stand-by emergency power or for failure of commercial power supplied by a utility company.

Section 4. Technical Standards.

TRIBUNE, or its designated representative, shall have the right throughout the term of this agreement to:

(a) determine the location of all of USER'S equipment in TRIBUNE buildings and on its tower;

(b) approve the size, type and quality of the equipment, including any and all repairs and electrical connections thereto;

(c) require USER, at its own expense, to take all action necessary to eliminate objectionable interference which is caused by USER'S equipment;

(d) require USER to temporarily cease operation or reduce power as may be required to conduct tests, perform tower work or make emergency repairs. Such events, insofar as possible, shall be proceeded by notice and shall occur at times mutually agreeable to USER and TRIBUNE.

USER shall install and operate its equipment in compliance with all state and local fire and electrical codes. USER shall operate its equipment in compliance with the rules and regulations of the Federal Communications Commission and USER'S Instrument of Authorization and shall furnish TRIBUNE with a copy of its current license and subsequent renewals for TRIBUNE'S files. A copy of said license shall be posted at all times on USER'S equipment. USER shall operate its equipment in compliance with the applicable standards for this site as established by the Western Washington Cooperative Interference Committee (WWCIC).

USER shall, at the time of the execution of this agreement, provide TRIBUNE with the following items, to be attached hereto as Schedules A through D:

Schedule A. copy of the engineering portion of USER'S application to the Federal Communication's Commission for the system covered under this agreement;

Schedule B. a system diagram of the system located on this site, such diagram to show duplexer, cavities, filters, isolators, etc.;

Schedule C. a completed TRIBUNE Technical Data Form;

Schedule D. a mechanical drawing detailing the antenna installation and all elevations and distances from ground and the supporting structure.

USER shall not raise "effective radiated power" (ERP) nor change equipment or operating parameters after execution of this agreement without prior written consent of TRIBUNE.

Section 5. Access Fee.

USER shall, upon execution of this agreement, pay TRIBUNE a one-time access fee of $_____, for which TRIBUNE will provide USER the following: _____
_____
_____
_____

Section 6. Inspection.

TRIBUNE shall have the right to inspect USER'S EQUIPMENT at any time during the term of this agreement to ensure compliance with the terms and conditions herein.

Section 7. Lawful Conduct.

USER represents and warrants during the term of this agreement that it has full power and authority from the Federal Communications Commission (or any other state or federal agency having jurisdiction) to install, operate and maintain its equipment in the manner contemplated under this agreement. USER agrees to use the facilities leased hereunder only for the purposes contemplated herein and to comply with all applicable state, county and municipal laws and ordinances. USER shall not carry on or permit any illegal or immoral practice or business on or in such facility.

Section 8. Assignment.

USER'S interest hereunder shall not be sold, conveyed, mortgaged, encumbered, assigned or otherwise transferred without prior written approval of TRIBUNE, which shall not be unreasonably withheld.

This agreement is binding upon TRIBUNE and USER and their respective heirs for the duration of this agreement.

Section 9, Sublet.

USER may not sublet, or in any manner, allow any other party to use or occupy any portion of TRIBUNE'S facility without prior written approval of TRIBUNE.

Section 10. Loss of License.

In the event that USER'S license from the Federal Communications Commission is revoked, cancelled, or not renewed, USER shall have the right to terminate this agreement by so notifying TRIBUNE in writing and by making four (4) additional monthly payments within thirty (30) days of such notice of termination.

Section 11. Harmful Interference.

In the event USER'S system is rendered unusable in whole or substantial part due to harmful interference, USER shall immediately give written notice of such to TRIBUNE. TRIBUNE shall undertake a good faith effort to correct or remedy such interference. If uncorrected after twenty (20) calendar days from date of USER'S notice of interference, USER shall have the right to declare this agreement, and all obligations hereunder, terminated. The parties understand and agree that TRIBUNE shall not be liable in any way for claims for damages or loss for harmful interference beyond its obligation to undertake a good faith effort to correct or remedy such interference.

Section 12. Liens.

USER shall not permit any lien to be imposed upon the property of TRIBUNE as a result of work done by or on behalf of USER and shall indemnify and hold TRIBUNE harmless against any and all expenses, including reasonable attorney's fees, in connection with any such lien.

Section 13. Additional Space.

This agreement in no way implies that TRIBUNE will build, furnish or provide USER with any additional building or tower space beyond what is agreed to herein.

Section 14. Access.

At all times during the term of this agreement, USER shall have the right of access to its equipment installed hereunder.

Section 15. Insurance, Reconstruction.

USER shall, at its own expense, maintain bodily injury and property damage liability insurance for injury or death of any person or damage to property in connection with the installation, operation, repair, maintenance, removal or condition of USER'S equipment, USER'S entry to or exit from TRIBUNE'S site, in amounts agreeable to TRIBUNE. USER shall provide certificates evidencing such insurance upon request by TRIBUNE. TRIBUNE shall, at its own expense, maintain fire and liability insurance upon its tower and building. In the event that TRIBUNE'S tower or building are damaged or destroyed to such an extent as to render either tower or building unusable in whole or substantial part, TRIBUNE may terminate this agreement as of the date of such occurrence or rebuild or repair either tower or building. TRIBUNE shall give USER written notice of its election within seven (7) days of the occurrence of the damage. If TRIBUNE elects to rebuild or repair, and does so without unnecessary delay, USER shall be bound by this agreement, except that rent and electrical power charge shall be abated for the time necessary to rebuild or repair; provided, that if damage is due to the fault or neglect of USER, there shall be no such abatement. If TRIBUNE fails to give any notice of election within seven (7) days of the occurrence of the damage, USER shall have the right to declare this agreement, and all obligations hereunder, terminated. USER shall not be entitled to any compensation or damages from TRIBUNE for loss of the use of the whole or any part of the facilities rented herein, USER'S property, or any inconvenience occasioned by such damage, repair, reconstruction or restoration, unless such is caused by or due to the negligence of TRIBUNE.

Section 16. Breach or Default.

Each of the following events shall constitute a breach or default of this agreement by USER:

(a) If USER shall fail to pay any installment of rent within ten (10) days of receipt of a written notice from TRIBUNE that such installment was not paid when due;

(b) If USER shall fail to perform or comply with any of the terms, covenants or conditions of this agreement, and if the nonperformance shall continue for a period of twenty (20) days after written notices by TRIBUNE to USER or if the performance cannot be reasonably completed within the twenty (20) day period, USER shall not in good faith have commenced performance within the twenty (20) day period.

(c) If USER shall vacate or abandon the space rented hereunder.

Section 17. Remedies.

In the event of default or breach, TRIBUNE shall have the following rights:

(a) TRIBUNE shall have the right to cancel and terminate this agreement by giving five (5) days written notice to USER;

(b) TRIBUNE may elect, but shall not be obligated, to make any payment required of USER herein or comply with any term, covenant or condition required hereunder to be performed by USER:

(c) TRIBUNE may reenter the space rented to USER and treat this agreement as subsisting and recover from USER all rent (but no electrical power charge) due under this agreement. TRIBUNE may relet the facilities;

(d) TRIBUNE may pursue any other remedy now or hereafter available to TRIBUNE under laws or judicial decisions of the State of Washington.

(e) The remedies given to TRIBUNE shall be cumulative, and the exercise of one right or remedy by TRIBUNE shall not impair its right to exercise any other right or remedy.

Section 18. Notices.

All notices and other communications shall be in writing and shall be deemed given if delivered or forwarded by certified mail, proper postage prepaid, to the following:

If to TRIBUNE:

If to USER:

Section 19. Surrender.

Upon termination or expiration of this agreement, USER shall remove its equipment from TRIBUNE'S facilities and surrender such facilities to TRIBUNE in as good a condition as when initially leased, normal wear and tear excepted. Any damage to TRIBUNE facilities caused by removal shall be billed to and paid by USER. Equipment not removed from Tribune facilities within twenty (20) days of termination or expiration of this agreement shall become the property of TRIBUNE.

Section 20. Non-Liability and Indemnification.

USER agrees that TRIBUNE shall not be liable for injury or death to any person, damage to property, or loss of business arising out of or in any way connected with USER'S occupancy of the leased premises, USER'S equipment, or USER'S entry to or exit from TRIBUNE'S site. TRIBUNE shall give USER prompt notice of any such claim in writing and USER agrees to indemnify and hold TRIBUNE harmless against all such claims, including investigation costs, court costs and attorney's fees. USER shall indemnify and save harmless TRIBUNE from all loss, liability, damage or other injury, including reasonable attorneys' fees, arising as a direct or indirect result of any and all acts, omissions or negligence of USER, its officer, employees, contractors or subcontractors in the performance of this agreement. USER shall also indemnify and save harmless TRIBUNE from any claims for copyright, libel, slander or similar liability by reason of the exercise of its rights hereunder.

Section 21. Attorney Fees.

If either party files an action to recover any use charge or payment under this agreement, for or on account of any breach of this agreement, to enforce or interpret any of the provisions of this agreement, or for the recovery of possession of the leased space, then the prevailing party shall recover its costs and reasonable attorneys' fees.

Section 22. Non-waiver of Breach.

The failure of TRIBUNE to insist upon strict performance of any of the covenants and conditions of this agreement, or to exercise any option herein conferred in any one or more instances, shall not be construed to be a waiver or relinquishment of any such rights, or any other covenants or conditions, but the same shall be and remain in full force and effect.

Section 23. Other Documents.

Each party undertakes to execute such additional or other documents as may be required to fully implement the intent of this agreement.

Section 24. Miscellaneous.

This agreement shall be governed by and construed in accordance with the laws of the State of Washington and the regulations of the Federal Communications Commission. The agreement replaces and supersedes all prior agreements and understandings of the parties.

The agreement constitutes the entire agreement and understanding between the parties with respect to the subject matter herein. No alterations, modifications, or changes in this agreement shall be valid unless made in writing and agreed to by both parties. Nothing in the execution and performance of this agreement shall be deemed in any way to constitute the parties as joint ventures or partners with each other.

IN WITNESS WHEREOF, the parties have executed this agreement the day and year below indicated.

TRIBUNE COMMUNICATIONS COMPANY
Site Management Division

_____
USER

By: _____

Title: _____

Date: _____

By: _____

Title: _____

Date: _____

STATE OF WASHINGTON)
) ss.
County of _____)

On this day personally appeared before me _____, to me known to be the _____ of _____, the corporation that executed the within and foregoing instrument, and acknowledged said instrument to be the free and voluntary act and deed of said corporation, for the uses and purposed therein mentioned, and on oath stated that he was authorized to execute said instrument on behalf of the corporation.

GIVEN under my hand and official seal this _____ day of _____, 19___.

_____
Notary Public in and for the State of Washington, residing at _____.

STATE OF WASHINGTON)
) ss.
County of _____)

On this day personally appeared before me _____, to me known to be the _____ of _____, the corporation that executed the within and foregoing instrument, and acknowledged said instrument to be the free and voluntary act and deed of said corporation, for the uses and purposes therein mentioned, and on oath stated that he was authorized to execute said instrument on behalf of the corporation.

GIVEN under my hand and official seal this _____ day of _____, 19___.

_____
Notary Public in and for the State of Washington, residing at _____.

Site: _____

Date: _____

TECHNICAL DATA FORM

(Schedule C)

USER _____ CONTACT PERSON: _____

BUSINESS ADDRESS _____

CITY _____ STATE _____ ZIP _____

PHONE _____ ALTERNATE PHONE _____

In the event of an emergency and the above cannot be contacted, the following party can be contacted regarding this system:

NAME _____ PHONE _____ ALTERNATE PHONE _____

SYSTEM DATA

TRANSMIT FREQUENCY _____ RECEIVE FREQUENCY _____

CLASS OF STATION _____ CALL SIGN _____

PURPOSE OF STATION _____

TRANSMITTER POWER OUTPUT _____ TX MFR. _____ MODEL _____

TX MODE/EMISSION _____

Building space REQUIRED FOR TRANSMITTER: W: _____ H: _____ D: _____

Building space REQUIRED FOR CAVITIES, ETC.: W: _____ H: _____ D: _____

POWER REQUIREMENTS: _____ Volts _____ Amps _____ Watts
(During Transmit)

CONTROL METHODS: Wireline _____ Microwave _____ Freq _____ Other _____

TOWER SPACE

TRANSMISSION LINE SIZE: _____ TYPE: _____ LENGTH: _____ TYPE OF HANGER: _____

ANTENNA MFGR: _____ MODEL: _____ TYPE: _____

EXACT LOCATION ON TOWER (top and bottom elevations): _____

_____

IF ANTENNA IS DIRECTIONAL, GIVE BEARING IN DEGREES: _____

WINDLOADING OF ANTENNA (Lateral thrust at 100 PMH): _____ Pounds

Name of party preparing this form _____

Date _____

Mt. Constitution Sites
2219 YEW STREET RD.
BELLINGHAM, WASHINGTON 98225
TELEPHONE (206) 734-9790

June 14, 1985

Clay Freinwald
Tribune Communications Company
948 South Grant Avenue
Tacoma, WA 98405-3396

Dear Clay,

Thanks for the information that you sent on your various sites. I was very interested to hear of your use of transmission towers at the SBE Wednesday. Next time we are in the market for a tower I'll look into that.

Our experience with commercial FM transmitters on our site goes back to 1963 when KISM went on the air with 50 KW ERP followed a year or two later with KNWR at 56 KW ERP. At that time the only two way was some 27 MHz tube type gear used by each station. Since that time we have over 50 transmitters and receivers, in various combinations on frequencies from 27 MHz to 2.3 GHz and I know of no intermod or de-sense. Sure we have to use precautions.

We insist on isolators and pass cavities on all transmitters (excepting the FM's who have lo-pass filters), Corcom power line filters in each box, and attempt to follow good engineering practices thruout. We have transmitting antennas adjacent to the 8 bay FM's and on the transmitters connected to these we note reflected power when the transmitters are not on, but again this has posed no problem. As you know we have an excellent site and to the best of our knowledge commercial FM's can live along side communications gear.

We are now looking at a 3.5 Megawatt UHF TV going on the site soon. We are definitely concerned, but feel that this can also work well if we use appropriate precautions. I'll let you know in a year or so.

Thanks again for the information. I'll send you our new brochure when it is off the press.

Danny Coulthurst, President

PROVISIONS APPLICABLE ONLY TO AMATEUR

RADIO SYSTEMS

SECTION I. Eligibility.

To qualify as an amateur system, USER must demonstrate to TRIBUNE that it is a licensed radio amateur.

USER shall demonstrate to TRIBUNE that the frequency or frequencies to be used have been coordinated by the Western Washington Amateur Relay Association (WWARA) and any other recognized amateur frequency coordination body.

All frequencies used by USER shall be within those frequencies authorized for amateur use by Part 97 of Federal Communication Commission rules and regulations, as amended.

SECTION II. Priority of Use.

Amateur USERS shall use facilities covered under this agreement on a secondary basis to commercial USERS. Amateur USER understands and agrees that its rights hereunder are subordinate to TRIBUNE'S obligations to commercial USERS.

TRIBUNE may require amateur USER, upon thirty (30) day notice, to relocate any or all of its equipment to accommodate the reasonable requirements of existing or potential commercial USERS. TRIBUNE may require amateur USER, upon thirty (30) day notice, to vacate, in whole or in part, the facility rented hereunder, if such is required by existing or potential commercial USERS; provided, that amateur USER need not relocate or vacate upon payment of the published commercial rate for the facility.

SECTION III. Amateur Rates.

The amateur radio rates shall be twenty (20) percent of the published commercial rates for the facility.

SECTION IV. Amateur Technical Standards.

Amateur radio systems shall comply with all technical standards set forth in the Telecommunications Site Access Agreement; provided, that amateur USER is not required to file a Schedule A.

Amateur USER shall not receive protection from a commercial USER.

TRIBUNE shall have the right to specify the location and placement of USER'S equipment on TRIBUNE'S facilities.

SECTION V. Affirmation of Terms.

Except as expressly modified herein, the terms, conditions and covenants of the "Telecommunications Site Access Agreement" attached hereto shall be effective and govern the relationship between amateur USER and TRIBUNE.

TRIBUNE PUBLISHING COMPANY

By: _____

Title: _____

Date: _____

_____
(AMATEUR USER)

By: _____

Title: _____

Date: _____

2800 (026)
MJT

REQUEST FOR COMMUNICATION SITE EVALUATION CONTRACT

Contractor: William F. Lieske, President
EMR Corporation
22402 North 19th Avenue
Phoenix, Arizona 85027
(978-5766)

Statement of Work: To conduct site evaluations of Hayden Peak and Potato Patch Communication Sites located approximately 10 miles southeast of Kingman, Arizona. These evaluations shall include the filing of a report detailing the existing uses, condition of site standards, and recommendations for site improvements. To evaluate site potential for each communication site and prepare a report which shall include possible site consolidation techniques, potential for additional low power types of uses, and the potential for the development of high power FM and TV facilities. To evaluate the Mohave Sun Broadcasting FM application for the Hayden Peak Site and to prepare a report describing the possible conflicts that could result should the development go forward. To complete said evaluations and reports on or before June 12, 1985, or as near to that date as possible.

Scope: Contractor charges $300.00 per day plus expenses for his services. Contract is to be issued for an amount not to exceed $2500.00. Travel to and from the sites will be provided by the BLM Kingman Resource Area personnel. The contractor would be required to procure his own travel and accommodations to and from Kingman, Arizona. The attached information is to be forwarded to the contractor, if approved.

Cost Code: AZ-020-4220-06-2518.