

DATE: Jan. 20, 2010

RE: RMP Application for a Conditional Use Permit
Mona to Oquirrh Transmission Project

TO: Kerry Beutler, Tooele County Planner

1. Quoting the Utah Public Utility Commission's response to Rocky Mountain Power Docket No. 09-035-54 Scheduling Order dated Jan. 12, 2010 in the Matter of their Pending Application for a Certificate of Public Convenience and Necessity for the proposed transmission line Mona to Oquirrh: "The Commission desires to clarify the purpose of this proceeding. This proceeding is not about the location or siting of the Transmission Line, if it is built. The Commission does not have jurisdiction over the siting of transmission linesWe trust and expect that Rocky Mountain Power will work in good faith with interested parties in seeking the most appropriate siting for transmission lines." End Quote.
Attachment #1

2. RMP is attempting again to blind side us with a premature CUP Application to goad us into believing they can lead you into signing away our rights. As Tooele County Commissioners and as interested parties we have the right as stated by the Public Utility Commission to select the most appropriate siting for the transmission lines in Tooele. RMP is having a very difficult time accepting No for an answer as they have never been met with this much public interest and support. We are very proud of our elected officials and their stalwart and unwavering stand to protect our interests and the voice of the public and strongly urge you to deny this CUP.

3. We have spent countless hours reading material about the high power transmission project proposed by RMP for Tooele and have attended many meetings with RMP as representatives of the Tooele Concerned Citizen's group. We have submitted engineering for alternate routes, RMP's engineers and company representatives have been to our home where these alternatives were presented to them and if there is one common thread amongst all of the data RMP has compiled, it is dishonesty and deception generated by their arrogance and assumption they could get away with turning a blind eye and deaf ear to Tooele and proceed with their original plans in unyielding stubbornness.

4. RMP has talked a lot but it hasn't listened or reacted to resident's concerns in any significant way. In fact, several government leaders have said the company has basically ignored their painstaking efforts to devise an alternative route that would avoid building transmission towers along Tooele's undeveloped southeast benches. This is the most detrimental route RMP could have chosen through Tooele and we will not let them take it under any conditions.

Tooele Transcript Bulletin Editorial Oct 13, 2009 "Power Line Route Doesn't Meet Our "Siting Criteria:
Transcript Bulletin Editorial 10-12-09. Attachment #2

"It's a textbook example of corporate obfuscation: First, tell people you're going to build power lines through their valley in order to provide for their future electricity needs. Next, propose several different routes as part of an elaborate shell game to keep public opposition from building against any one route. Then develop arbitrary "siting criteria" any route must conform to — criteria that, when

applied, only fit the routes you've already proposed. Finally, solicit gallons of input from the public, accepting any suggestions in line with what you want to do.

Rocky Mountain Power has gone through all these machinations and more in planning its Mona to Oquirrh transmission line, which will run through Tooele Valley. The company can point to several meetings, Web sites, public documents and newspaper articles as evidence they have conducted an exhaustive public outreach program to inform residents about the project. But the noise of all that "communication" is really the sound of a community being railroaded.

Tooele City Mayor Patrick Dunlavy said of the company, "It became apparent at the last couple of meetings that their deadlines were coming up and that they had basically, in my opinion, not really negotiated in good faith." Tooele County Commissioner Jerry Hurst seconded that opinion, saying, "I don't know what kind of game we're playing here, but I don't like it."

Comments like those make us very cynical about RMP's public outreach campaign. It appears this company came to the Tooele Valley with a specific plan in mind, and no amount of local opposition was ever going to be enough to dissuade them.

Well, sorry, Rocky Mountain Power, but your Tooele benches route simply doesn't meet our siting criteria. Our hillsides mean too much to us. In fact, city officials have fought hard this decade to keep our hillsides open so that we don't repeat the overdevelopment mistakes that have blighted large areas of the Wasatch Front. We aren't about to sacrifice one of the most beautiful and defining characteristics of this valley without a fight.

And this fight isn't over yet."

5. Their dishonesty and deception were first discovered in the Draft EIS and has continued right up to this Application for Conditional Use Permits. On pg 19 of the CUP Application they refer to the BLM Public Open House held June 23, 2009 in Tooele at the Tooele County Courthouse stating 48 people attended. Per the BLM, 165 people made written comments in this meeting with more who did not turn in their comments because the BLM ran out of copies due to the tremendous number of Tooele citizens in attendance at the meeting.

6. The CUP Application is a formal document prepared by the largest utility company owned by the one of the wealthiest men in the world with an army of paid employees who have made it a repeated habit to report inaccurate information to achieve their desired objective regardless of how they obtain it no matter the consequences to others. This was the BLM's meeting, just as the EIS is the BLM's document, but the information was printed and skewed to lead the reader - the County Commission, the Public Utility Commission, the Federal Government, and affected citizens to go along with the facts presented in the document as true and accurate information to base their decision on.

7. The information contained in the Draft Environmental impact study contained outdated, inaccurate, flawed and incorrect information. We believe RMP intentionally slanted the information to suit the route that best met their needs. These inaccuracies were reported to the BLM during the open comment period. Attachment #3

8. Commissioners, please keep this as the number one fact to take into consideration and remember throughout your decision making process; This route along the southeast benches would not be on the table for consideration if the first document, the Draft EIS, had contained current and accurate information and had been a true and honest representation of Tooele. Attachment #4 Book

*Photo Book #4
(Submitted to PSC)
5-10-10 comments*

9. This was obvious from the beginning and RMP has continued to reinforce our belief based on their relentless tactics to proceed with a route that is the most detrimental to Tooele in every aspect and a route that Tooele Valley has unanimously and vigorously voiced their opposition to. The Tooele Concerned Citizen's Committee obtained 4000 voting citizen's signatures on a petition saying they opposed this route and any route that came close to current residents. Attachment #5 Petitions

10. RMP continues with their misrepresentation of facts, reporting in the CUP application pg 19 about the series of three Conflict Resolution Conferences that were held. RMP's version of those meetings is again not accurate. "RMP in an attempt to find some type of compromise solution on the Limber to Oquirrh line route either by consensus or majority based on the comments received by both RMP and BLM. RMP was ultimately unsuccessful at finding any solutions meeting the RMP's siting criteria that garnered any more public support than the originally proposed routes analyzed in the DEIS."

11. You and I know this is a blatant lie. We were in attendance at those meetings with you along with Tooele City Mayor, Tooele City Councilmen, Grantsville's Mayor and Grantsville Citizen Representatives where we did come to a unanimous consensus, however RMP terminated the third meeting at this point because we were successful at coming to a compromise solution and we had garnered more public support than RMP could handle, so what did they do? They again made a misrepresentation of the facts and printed them in a booklet they are presenting to you and expecting us to believe all the other items contained in it aren't lies also?

12. Contrary to RMP's biased inaccurate report, the result of these meetings was the Tooele County Consensus Letter which is our unanimous route and siting for the transmission lines and substation location in Tooele County. The letter was signed by Tooele County Commissioners, Tooele City Mayor/Council Chairman, Grantsville City Mayor/Council, Tooele City/Grantsville Concerned Citizen Representatives and was submitted to the BLM and the PUC. Attachment #6 Consensus Letter

13. Settlement Canyon Reservoir: RMP's proposed route will run over the Settlement Canyon Reservoir. High power transmission lines of this magnitude placed anywhere in the vicinity of the Settlement Canyon Reservoir are detrimental to the use of the reservoir. Whether it be for recreational use or as a water source for firefighting helicopters to access water to respond to wildfires as they did just this last summer to douse the Pole Fire.; homes on the southeast benches were in jeopardy from simultaneous fires and residents placed on evacuation notice. There is no acceptable or reasonable mitigation solution to this problem except require that RMP move the lines completely away from the Reservoir.

14. Corner Canyon Springs: RMP's proposed route will impact the springs in corner canyon that are a source for culinary water for Tooele City Residents.

15. Culinary Water Contamination: RMP admitted in a meeting dated Oct 27, 2009 that they do use growth retardant sprays to inhibit the growth of vegetation in the proximity of these transmission lines. These lines are proposed to be located right over these springs. The risk of contamination of our water system is far too great in this area. There is not a reasonable mitigation solution for this problem except to deny the construction of the lines in this area.

16. Loss of Trees and Vegetation in Corner Canyon: The construction of these power lines in the Corner Canyon area would require the destruction and clearing of pine trees and scrub oak and many other forms of vegetation in this area. This area is one of greenest and most pristine view areas that all of the residents of Tooele Valley enjoy as a scenic vista. It is absolutely morally unacceptable to allow RMP this route. What other route in the valley would RMP have to cut down a single tree to construct? Not one. Yet, to take this route RMP will have to cut down hundreds of trees on the face of the greenest, densest mountain in all of Tooele Valley. According to the CUP Application construction of the lines across the Southeast Foothills and Corner Mountain will result in destruction of 20.5 acres of land designated as Visual Open Space and are categorized as lands that provide vistas. The DEIS states 89 acres will be permanently destroyed and 202 acres of vegetation destroyed including the access roads that will need to be built to allow heavy equipment in to construct foundations and place the structures. This mountain is the face of Tooele. A scar on the body can be covered up; a scar on the face is always visible and can never be covered up or restored. If RMP is allowed to cut the face of Corner Canyon up, this will be a scar that can never be mitigated. The vegetation they will be removing cannot be replaced in your or my lifetime.. No mitigation possible.

17. Residents in Close Proximity to this route: RMP has stated that only 19 residents live in close proximity to this route. Just to correct the number. After investigation and a visual count of the residents in the area there are 309 homes within 1/2 mile of this route with an average value of five hundred thousand dollars each. There are over 600 homes within 1 mile of the route, all with the southeast and east side property value. There are two new developments (Deer Hollow phase 6 and 7 and Loma Vista) with homes currently being constructed within 1/4 mile of this proposed route. This is a gross misrepresentation of the actual facts in this area. Property values in this area will be greatly impacted in a negative way by the location of these lines. The financial loss to Tooele County's tax base to fund schools, roads, etc would be at such an astronomical amount when applied to present property value, future property values lost times the number of years of loss that even an expert would have difficulty forecasting the devastation of these lost tax dollars.

18. Health Risks: There are, as you can see, far more residents in close proximity to the proposed line than the numbers presented by RMP. A meeting was held at the Tooele County Health Department on Aug 27, 2009. The health issues of these transmission lines were discussed. Even though the research is still on going to identify the effects of exposure to these lines, the Health department's recommendation was to error on the side of caution. This route is proposed to run within a few hundred yards of a little girl's home that is kept alive by a pacemaker. She lives at the base of corner canyon. In the instruction booklet that accompanied the pacemaker it instructs to avoid high power transmission lines as it will cause a malfunction of the pacemaker, endangering her life. What greater health risk is there. That is just one of the residents living in close proximity to this proposed route. There is not a great enough mitigation. Refer to the comments made by Dr. David O Carpenter in the state of Minnesota as an expert witness for the public utilities commission. Attachment #7 (www.justchangelaw.com)

19. Tooele High School's "T": This proposed route would pass right in front of the T that Tooele High School placed on the mountain side in 1916. Since that time thousands of Tooele High School students, alumni and Tooele residents have enjoyed this Symbol of pride of our School. Yearly the T is accessed by hundreds of students in a partying mode to show the community their pride as a senior and the T is lit up. RMP's proposed route would place a 345kv power line right in the path of these

partying students as they access the T. An accident just waiting to happen. What mitigation is there to replace to life of a student that is electrocuted? Therefore no mitigation possible.

20. International Smelting & Refining Superfund Site: RMP's propose route will pass through the ISandR hazardous mill tailings site and a wild life preserve. The mill tailings site is being controlled by the EPA. The area has been capped to protect Tooele residents from exposure to arsenic, lead and other toxic chemicals. This area is not to be disturbed or unearthed. If RMP is allowed to construct the transmission lines in this area it will be putting Tooele residents at a risk of exposure to the toxic chemicals protected there. The only mitigation is not to allow construction in this area. Attachment #8 EPA / I S & R Superfund Site

21. Fault Lines: The CUP Application states there are 15 fault lines. Where are they? There is enough justification to postpone making a decision until the Final EIS is completed, which according to the BLM is at least 8 weeks away. Then depending upon whether the FEIS is accurate determination of mitigation could be analyzed.

22. Tooele County General Plan Concerning Conditional Use Permits: "The county should encourage the use of common corridors for the location of communication and energy facilities especially transmission facilities." "If the reasonably anticipated detrimental effects of a proposed conditional use cannot be substantially mitigated by the proposal of the imposition of reasonable conditions to achieve compliance with application standards the conditional use may be denied."

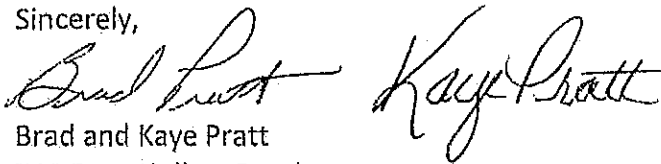
23. There is not reasonable conditions that can be imposed to mitigate the detrimental effects of the proposed use as is stated in Tooele County's General Plan. There is no reasonable or acceptable mitigation possible for this route. The natural environment of vegetation and species that has been growing and evolving on the mountain in their natural growth pattern over the course of hundreds of years with interconnecting root systems, such as that of the scrub oak for example, which grows abundantly there providing the mountain with a foundation and the substance that keeps it from eroding as well as providing the on looker with the most spectacular, panoramic view of a variety of changing seasonal colors. If RMP has the arrogance to say they can replace or rebuild what they would be destroying and damaging, they would be agreeing to an impossibility, a task they could never accomplish, not in yours or my lifetime. RMP wants to intentionally destroy the most valuable land in Tooele County with their high voltage power lines. What price can be put on something that cannot be replaced, rebuilt, or improved. Bring in property experts to determine where the most valuable property in Tooele is located and they will tell you it is Corner Mountain and the South East Foothills. You don't see high voltage power lines on the east benches of Salt Lake City, in Park City or across Temple Square. Why? Because the entities who are responsible to protect those precious areas from being ruined or destroyed have not allowed them there.

24. RMP's Plan of Development probably won't include the five year old little girl living in the closest proximity to the route who has a pace maker with an instruction booklet that says she cannot live by transmission lines, and we'll bet it doesn't include the IS & R mill tailings that have been capped to keep lead and arsenic from escaping into our air that they will be crossing over and it won't include the necessity to access our reservoir by helicopter for water when there's another forest fire to put out and that they cannot replace the vegetation they will destroy and that would be impossible to replace, and the potential contamination of our culinary water system with growth retardant herbicides. ~~Noe~~

decision is crucial to the entire Tooele Valley to get this initial route's siting location right the first time to ensure it is constructed in the area deemed to be the best location for Tooele Valley now and in the future.

29. We are requesting as citizen's and as appointed spokespersons for the Tooele Concerned Citizen's Group that you deny this CUP Application. We can not allow construction of transmission lines on the south and south east benches of Tooele. RMP advertises they are building lifelines; on the southeast bench they would be building a deathtrap for Tooele. We need to stop letting RMP tell us what they need. Our needs are more important because once those lines are here, they are permanent with known and unknown long-term, long-range effects on our environment and our residents. Long after RMP has moved on and forgotten all about us, these huge, ugly megalithic power lines will be here as a constant reminder of what you, the County Commissioners decided was in their best interest today. What legacy do you want to leave?

Sincerely,

The block contains two handwritten signatures in black ink. The first signature, on the left, is 'Brad Pratt' and the second, on the right, is 'Kaye Pratt'. Both are written in a cursive, flowing style.

Brad and Kaye Pratt
743 Deer Hollow Road
Tooele, UT 84074

- BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH -

In the Matter of the Pending Application of
Rocky Mountain Power for a Certificate of
Public Convenience and Necessity
Authorizing Construction of the Mona –
Oquirrh 500/345 kV Transmission Line

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DOCKET NO. 09-035-54

SCHEDULING ORDER

ISSUED: January 12, 2010

By The Commission:

On November 23, 2009, Rocky Mountain Power filed its Application for a Certificate of Public Convenience and Necessity for a proposed transmission line from its Mona substation to its Oquirrh substation, along with prefiled testimony supporting its Application.

The Commission desires to clarify the purpose of this proceeding. This proceeding is not about the location or siting of the Transmission Line, if it is built. The Commission does not have jurisdiction over the siting of transmission lines. This proceeding is to determine if present or future public convenience and necessity does or will require construction of a transmission line. We trust and expect that Rocky Mountain Power will work in good faith with interested parties in seeking the most appropriate siting for transmission lines.

On December 29, 2009, the Commission issued an order establishing a Scheduling Conference for January 11, 2010. The Scheduling Conference was duly held on January 11, 2010 in Room 401 of the Heber M. Wells State Office Building, 160 East 300 South, Salt Lake City, Utah, and was conducted by Julie Orchard, Commission Secretary. Representatives of Rocky Mountain Power, the Division of Public Utilities, and the Office of Consumer Services, were in attendance.

Based on the discussion of the parties and based on the Commission's review of its statutory authority, the Commission hereby issues the following

ORDER

1. The issues in this proceeding shall be limited to the issue of whether the present or future public convenience and necessity does or will require the construction of the transmission line. **This proceeding shall not address the following issues: the siting of the transmission line, the question of requirements of Utah local government entities related to siting and cost issues that should be addressed by the Electric Facilities Review Board, or prudency issues for ratemaking purposes.**

2. Unless later modified by the Commission, the following dates shall govern the schedule in this docket:

a. Parties wishing to file direct testimony in response to the prefiled direct testimony filed by witnesses for Rocky Mountain Power shall file such testimony on **March 30, 2010.**

b. Parties shall file rebuttal testimony on **May 5, 2010** in response to the direct testimony filed by witnesses on March 30, 2010 under subparagraph a. above.

c. Parties shall file surrebuttal testimony on **May 18, 2010** in response to the prefiled rebuttal testimony filed on May 5, 2010 under subparagraph c. above.

d. Hearings shall commence at **9:00 a.m. in Hearing Room 403**, Fourth Floor, Heber M. Wells Building, 160 East 300 South, Salt Lake City, Utah on **Monday, May 24, 2010.** If not concluded that day, the hearings shall also be held on **May 25, 2010.**

DOCKET NO. 09-035-54

- 3 -

c. Public witnesses shall be allowed to present their positions on the issues in this docket on **Monday, May 24, 2010** commencing at **5:00 p.m. in Hearing Room 403**, Fourth Floor, Heber M. Wells Building, 160 East 300 South, Salt Lake City, Utah.

3. Commencing immediately, parties shall respond to data requests within 15 calendar days. Commencing May 5, 2010, parties shall respond to data requests within 7 calendar days.

Individuals wishing to participate in the hearing by telephone should contact the Commission at least two days prior to make arrangements. On the day of the hearing, participants must call (801) 530-6716 or call toll-free 1-866-PSC-UTAH (1-866-772-8824) at least five minutes prior to the start time to ensure participation.

In compliance with the Americans with Disabilities Act, individuals needing special accommodations (including auxiliary communication aids and services) should notify Commission at 160 East 300 South, Salt Lake City, Utah 84111, (801) 530-6716, at least three working days prior to the hearing.

DATED at Salt Lake City, Utah this 12th day of January, 2010.

/s/ Julie Orchard
Commission Secretary
G#65011

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Tooele, UT

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RealFeel®: 32°F
Winds: Calm

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Power line route doesn't meet our 'siting criteria'

by Editorial

Oct 13, 2009 | 1100 views | 3  | 21  |  | 

It's a textbook example of corporate obfuscation: First, tell people you're going to build power lines through their valley in order to provide for their future electricity needs. Next, propose several different routes as part of an elaborate shell game to keep public opposition from building against any one route. Then develop arbitrary "siting criteria" any route must conform to — criteria that, when applied, only fit the routes you've already proposed. Finally, solicit gallons of input from the public, accepting any suggestions in line with what you want to do.

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Tooele City Mayor Patrick Dunlavy said of the company, "It became apparent at the last couple of meetings that their deadlines were coming up and that they had basically, in my opinion, not really negotiated in good faith." Tooele County Commissioner Jerry Hurst seconded that opinion, saying, "I don't know what kind of game we're playing here, but I don't like it."

Comments like those make us very cynical about RMP's public outreach campaign. It appears this company came to the Tooele Valley with a specific plan in mind, and no amount of local opposition was ever going to be enough to dissuade them.

Well, sorry, Rocky Mountain Power, but your Tootle benches route simply doesn't meet our siting criteria. Our hillsides mean too much to us. In fact, city officials have fought hard this decade to keep our hillsides open so that we don't repeat the overdevelopment mistakes that have blighted large areas of the Wasatch Front. We aren't about to sacrifice one of the most beautiful and defining characteristics of this valley without a fight.

And this fight isn't over yet.

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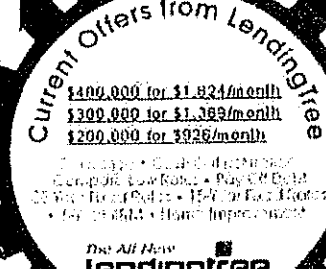
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Attachment #3

Aug 11, 2009

RE: Rocky Mountain Power - Mona to Oquirrh Transmission Corridor Project
TO: Bureau of Land Management
Attn: Mike Nelson

Quote from the Tooele County General Plan 2006 - Environmental Impact Study (EIS) page 3-60.....
"Management goals and policies Tooele General Plan 2006 regarding visual resources pertinent to transmission line and substation siting are limited to the Mid-Valley Recreation and Technology Park areas, which guide the development in and around the Deseret Peak Complex and Miller Motor Sports Complex"....

"Telecommunications facilities and transmission lines should not be located within view of the Deseret Peak and Miller Motor Sports Park, unless they are sited and designed so as to be virtually invisible to the naked eye from the subject properties; or are designed to appear as a natural feature of the environment and do not block views or disrupt scenic vistas; or are so well architecturally integrated into an existing building as to effectively be unnoticeable... or placed underground."

Why does this "special protection" only pertain to Miller Motor Sports Park and The Deseret Peak Complex? The EIS only took a portion of the County's Plan. Is there more in the plan that protects our Mountains and Canyons?

We are trusting this must be an error in the EIS and that the County was not apathetic to our interests and needs. Because the protection granted under the County's General Plan has protected Miller Motor Sports Park and Desert Peak from any route passing close to them. We would like to have the entire plan included in the EIS if it grants the same privileges and protection to the mountains and residents.

If not, we will be asking why weren't these beautiful mountains – the highly sensitive view areas of Tooele, the prime real estate land in our valley and the recreation lands of Tooele not protected and given the same consideration as these two projects were given? They are man-made structures and can be rebuilt and reconstructed at any given time or location..... but God created the mountains and they cannot be replaced or reconstructed by man. We are keeper of God's creations, you as our elected officials are the public's keeper.

As elected officials and government agencies you were elected and paid by the citizens and are paid to keep a careful watch over us. It is your obligation to listen to us and then speak for the majority to keep our interests protected and safe. You need to keep your eyes wide open, looking out for wolves in sheep's clothing - sales men who enter our valley with a sales line to take what they want and even convince you to write rules that protect them and their private business interests first – over and above our interests.

The citizens of Willard and North Ogden were not so lucky. Their elected City and County officials were persuaded by RMP to sign a construction permit prematurely. When citizens woke up one morning to see the unwanted devastation RMP's construction to their views and residences, they didn't

have any legal means to stop RMP or request the routes be moved. We are very grateful our City and County Officials were wide awake on their first watch and had the forethought to not be talked into signing any premature agreements with RMP. Because there wasn't a written agreement the citizens of Tooele have a window of opportunity to oppose RMP's destructive plans for Tooele.

Pete Grimm told me a story about a Camel and his master. The camel kept putting his nose in the master's tent in order to be able to breathe during the sand storm. He eventually forced his "master" out of his tent entirely. The camel, the servant, became the Master. RMP should be our camel – our servant. But like any powerful servant, we need to keep it in its place. If we let it put its nose in our tent, it can easily take over our whole tent and force us out into an "ugly" sandstorm. Roles can be reversed - the world can be turned upside down. We need to give our camel appropriate care, but we need to keep our camel in its place. We can and do enjoy the benefits of electric power while taking appropriate care for the needs of RMP – BUT we do Not and should Not let RMP force it's ugly power corridors into our beautiful city.

RMP is our paid servant. We pay our electric bills and they in turn supply us power. Anytime we need more power they are obligated to bring it to us – but remember we are paying for the process. According to the Federal Register, in the third qtr of 2008 RMP applied for a 3.6% consumer rate increase. The rate hike was approved by the Utilities Commission. Then again in the first quarter of 2009 RMP applied for another consumer rate increase of 4.7%. That's an 8.3% increase in our power bill in less than a year!! So yes, the Master has a very well paid Power camel servant. For this reason, the Master should say where the power corridor is placed in his tent, since the Master is paying the bill.

Under the Federal Register we – the citizens of Tooele County – are legally granted a 90 day open comment period. The Federal Register was filed by the Bureau of Land Management on May 15, 2009 is taking our right to voice our opinion for a short 90 days to let you, our political, elected officials know and RMP know we don't want the power corridors where RMP has proposed to place their huge ugly power lines. We don't want them where we live. We do not want them close to residential areas or ruining our views and our future growth.

So far we have been heard by Tooele City. Mayor Pat Dunlavy and the Tooele City Council recently voted unanimously to oppose RMP's proposed routes anywhere in Tooele City at the July 1, 2009 City Council Meeting. They are in complete agreement with the citizens. Tooele County Commissioners voted unanimously to oppose the South East Bench Routes at the County Commission Meeting July 21, 2009. Our State House Representative Jim Gowans authorized his comments be sent from Tooele City to the BLM opposing the South East Bench Route in Tooele City. This is because of the Tooele Concerned Citizen's Committee we formed to oppose the Routes presented by RMP and the BLM through Tooele. Our committee has obtained just under 4000 signatures on the Petitions. Our voices are being heard, but there is still no guarantee RMP will move their proposed route. As a public utility RMP can take imminent domain of our property and have it condemned. We cannot allow this to happen.

Part of the Federal Register is the Environmental Impact Study. We, as a committee after reading and studying it, have discovered during the 90 day comment period missing, incorrect or incomplete documents. Information not included may have led to a biased report. If all the missing and incomplete information is presented and included in the Final Environmental Impact Study, many of RMP proposed routes will be eliminated.

1. As mentioned only part of the Tooele County General Plan 2006 is included in the Draft EIS. The entire County Plan should be included. We also want to know who turned in the information from the County and who is responsible for the misrepresentation of facts.
2. Tooele City has a master plan that was not included and the EIS even says that one doesn't exist. Tooele City has a plan for the city and its future growth. It doesn't include ugly 200 ft power lines as a fence across the gateway to the valley. The mountain foothills are our prime real estate.
3. Several natural springs are not mentioned nor given adequate description as to their importance. One of these springs is the only water source for wildlife on Corner Mountain. One spring is located in Left Hand Fork and is "the Water" source that supplies Tooele City with its culinary water. That's a pretty big miss. And if that spring doesn't get disturbed by RMP during building, they could hit the dozen springs in Middle Canyon that serve Tooele City's other culinary water source. If any of these natural water sources are permanently damaged as the EIS states there is great risk they will be – Tooele will dry up and without water, who needs power?
4. Two of our major Canyons will be negatively affected. These canyons are used by our residents for recreation, enjoyment and entertainment. People live in Tooele and do without a lot of things; malls, theatres, greater employment opportunities or pay more to travel to Salt Lake to work in exchange for the open space and the quiet tranquil beauty a good fishing trip or for a walk in the mountains, and to breath clean air while taking in the beautiful scenic views of green or snow capped mountains.
5. Tooele City has a volunteer fire department. The next closest fire dept is in Stansbury Park. Construction and repair of power lines increases the risk of wildfires. On Aug 6, 2009 we had a massive wildfire in Settlement Canyon, Left Hand Fork, Skull Valley and Pole Canyon. BLM helicopters used the water in Settlement Canyon Reservoir to put out the fires consuming thousands of acres of mountains burning down throughout Tooele County. Residents on the South East Benches were put on evacuation alert. The closeness of the water from Settlement Canyon Reservoir quickly saved Settlement Canyon and thwarted greater losses in the others. How will the BLM helicopters access this valuable water commodity if they have 150 foot power lines running over it?

6. Tooele City has 105 acres they have identified as open space located on the south east bench under a Federal Grant. Tooele City has approved two large residential developments for Loma Vista (700 lots R14) and another above Deer Hollow and Elk Meadow and that's just a few of the residential developments not mentioned in the EIS.
7. The helicopter landing pad used by Life Flight at Mountain West Medical Center was not listed or taken into consideration as it passes right next to the route running through Tooele. That's another huge life threatening, life altering mistake made in the EIS.
8. The EIS has also used outdated photos and maps which painted an unrealistic visual picture of Tooele City and the Tooele Valley. There isn't a picture of the South East Benches and the homes and residents that are really there. The BLM was shocked at the pictures I took to the June 23rd meeting they held showing children on trampolines and the picturesque – yes, breathtaking views that would be destroyed. The BLM doesn't want them there now they have seen what's here. They were not aware the corridors were running anywhere near where people lived or what they would be ruining. The RMP project manager had not even set foot in Tooele until the morning of June 23rd either. You cannot appreciate what's here unless you see it or have the knowledge of its presence in accurate, current, and detailed information. The Environmental Study is flawed and needs to be corrected.
9. The EIS states there are 19 homes on the South East Bench who will be negatively impacted with Routes D, E1, E2, F1, F2 Section 190 – That isn't true – there are 309 homes on the South East Bench with average value of \$500,000 each. Lots in the area are currently selling at an average of \$150,000 for approx 1/3 acre. And there are over 600 homes within 1 mile with an east side property value. Placement of the power lines on the South East Benches would have the GREATEST amount of negative impact on the GREATEST amount of People, the environment, and at the GREATEST amount of cost.
10. Comparison values are documented in the EIS as if they had equal proportional ratios. This is not the case. In any area, any business, any home budget, the ratio of a dollar has a different value associated with it. RMP views billions compared to millions and the list goes down from there. The EIS needs to make their comparisons in ratio values. Apples compared to Apples. Oranges to Oranges. This would be the proper perspective associated with true costs and losses to the appropriate areas.
11. Tooele City is the largest City in Tooele County. We are three times the size of the next City according to the census. We pay more in taxes because of the value of the homes and property, especially those on the South East Benches. The annual revenue that would be lost to the County will add up and it will be at a great cost to the city and county schools and roads and all the other amenities we fund. Not to mention there won't be future residential growth. The financial loss will be greater than any loss RMP can compare it to. There's a difference between their ability to

keep charging higher rates to us to compensate for their raises and their expenses. We won't have a way to create any more land to replace what they will be taking. Land and Water are a limited resource; there's only so much of it and when it's gone it's gone. Tooele will stagnate and eventually disappear and RMP will carry on into the future fat and sassy as if nothing happened.

12. The EIS states 89 acres of ground will be PERMANENTLY destroyed and 202 acres of vegetation destroyed if any of the South East Bench routes are taken. That's again – three times or four times the COST of using any other property in the County. RMP states longer Routes are more costly to them – but we pay the bill – maybe we should look at our costs. RMP has also reported to us in their own engineering documents it is more costly to build power lines in mountainous terrain.
13. Tooele has a "T" on the Mountain that has both historical and sentimental value to the residents of Tooele and the alumni of Tooele High School that is not mentioned in the EIS. The "T" was placed there by the 1916 graduating class of THS as recorded in the schools yearbook and has served as a visual welcoming home sign to all for over a hundred years. One of the proposed routes runs in front of the "T". This will be a lasting negative effect on the view of the mountain - home of the "T". My concerns are also safety. Twice a year hundreds of high school seniors access the "T" lighting it at homecoming and graduation when students are known for their pranks and dares. There have already been reported deaths by young people trying to climb these power lines in other areas.
14. At the Resolution Meeting set by RMP held Aug 11, 2009 we were told by RMP if this project is delayed RMP would suffer and we would be hurting their employees and their 401k's. What about our 401k's? RMP has a knack at reversing the roles and reversing the outcome to present the "picture" from their perspective with no regard for our perspective. Which leads to my next point. Take a look at the pictures in the EIS that were used to represent Tooele City and County. The actual picture is far different than what was turned in to the Federal Government - people who have decided what will happen to us who have never been here and are relying on the "pictures" to make their decisions. Please refer to the booklet attached and get the real "picture".

RMP is a monopoly of liars. They have pulled our chains with misrepresentation at their meetings and talk of promises to listen is all lies. They tell us we need to prepare an alternate route and they will look at it and then they say it's too expensive and can't be done. We started over again and prepared an even better alternative route because we had studied and spent our personal time to live within every confine we had been presented in the EIS and from reading volumes of printed information. Since when is it our job to do their job? They are deceitful and have misled us down paths of unrealistic expectations.

The so-called Resolution Meeting was an ambush and designed to put Tooele against Grantsville and create conflict within. Grantsville is behind in the game and it was a waste of our time to listen to the same RMP brainwashing and redundant power hog wash. Grantsville had a few unknowledgeable people there without their Mayor or City Council or enough representation to have an equal say. When we asked how much power Tooele consumes, RMP VP said he didn't know... – Then how does RMP know we need more power? They can't hook our 138kv into a 345kv line and there isn't a 138kv line coming back to Tooele from the Oquirrh Substation. We were told by RMP V.P. (Aaron Gibson) a different clearance width for the dual lines yet again and he said the far West Route shouldn't have been on the maps during the EIS and it was a mistake by the BLM. This was after we had been told it was the one for sure Route and had spent endless hours trying to find the route that would have the least amount of impact on the least amount of people. The RMP Project Manager then said the Far West Route was still being considered.

Where's the truth? Just how flawed is the EIS and the Federal Register? We believed, in the beginning it was an accurate document and we have tried with every fragment of our being to work within the rules and be good citizens. But what are the rules? They keep changing on us. We want answers and we want to remind everyone, the BLM and RMP and our elected government and governmental agencies - We live in America. We live under a democracy. We the people elect our legislators and they are obligated to speak for us. We are asking and we want answers. We have put our money where our mouth is and followed the rules but the rules keep changing on us.

God only put a few green areas with mountains in Tooele City. Why would we allow these power corridors to be put there? Of all the other places in Tooele County to choose from! Do you think power corridors of this magnitude running through a city or a county is going to attract people to live here or interest businesses to locate here if they are greeted with a power corridor fence running across SR 36 or wrapping around the edge of our spectacular scenic mountain views and prime real estate areas? Of course not! Does the executives of RMP live under 500kv or 345kv corridors? This brings me to another point. Once RMP is given a Right of Way, they can add lines and increase voltage "if and when needed" per the Federal Register. So once they are here they are a permanent fixture that can grow bigger and uglier forever.

Put the corridors where God didn't put any beauty in Tooele County. His pre-designed plan is as clear as day where God wanted them to go. This is a travesty and an injustice. You don't see them on the East side of Salt Lake or where Kennecott is opposing them in the South West. Salt Lake's elected officials have a plan they enforce that keeps industrial lines in industrial areas where people don't live. They do not allow them in residential areas.

The West Side of Tooele County is less populated and has more dry land where the negative impact would be the least and where the greatest good would come from them. The West side of Tooele County is where the County has identified they want Industrial Growth. The County Commissioners said they lost a deal with a Paper Company who wanted to build on the West side of Grantsville

because Tooele lacked the needed power. A new repackaging plant is under construction near Grantsville, Walmart Distribution Center, US MagCorp to name a few of the larger industries in Tooele County are all on the West Side and if they are the ones who need power, then put the power where they can access it.

We need you to be united with Tooele, "The Master", so to speak, and stand with us the people, our City, County and the State elected officials to keep our camel, RMP in its place. Stay with a Plan that will benefit Tooele City and Tooele County now and in the future- If we fail to plan, we're planning to fail. We are asking for the support of all the governmental officials and governmental agencies who can reverse and change RMP's devastating path of destruction planned for Tooele City. TV Media, Channel 13 and Channel 2 News were present at our local government meetings and have helped make the public very aware of this problem. We are not going away, we are not going to be silent or let this happen without putting forth every effort and taking every legal stand to stop RMP.

There are better alternatives to the routes RMP has presented in the EIS. We know this for certain. We have prepared them for RMP. We are respectfully requesting your support to review our request and lend us your support as well. We want to be good citizens and support growth and change that is well thought out and necessary. We ask that you take a pro active role in supporting our request to find an acceptable alternative route for the power lines.

Sincerely,

Kaye and Brad Pratt 743 Deer Hollow Rd Tooele Utah

Attachments: Current Photos of Tooele Valley – VERY different than the pictures in the EIS.

Delivered to Cindy Ledbetter at the BLM on Aug 12th Color copies 4 per page of Tooele's homes on the South East Bench to show the closeness of Corner Mtn & children in close proximity, the "T", Middle Canyon, Oquirrh Mountains, Commercial Businesses Downtown Tooele, Tooele Public Library, Tooele High School, Oquirrh Hills Golf Course & Club House, two churches, Mountain West Medical Center & Helicopter Pad, Deseret Peak, Miller Motor Sports Park, Utah Industrial Depot, New Repackaging Plant on Sheep Lane, Tooele Airport (with a plane landing!), SR 36, Hwy 178, Grantsville West Side Homes, WalMart Distribution, Stansbury Mtns, the new 345kv lines in Malad and Pocatello Idaho.

September 21, 2009

Bureau of Land Management
Attn: Mike Nelson
2370 S. 2300 W.
Salt Lake City, UT 84119

RE: Mona to Oquirrh Transmission Line Project

Mr. Nelson,

Thank you for BLM's attention to this important project and your willingness to listen to our concerns and proposals. We also appreciate Rocky Mountain Power's facilitating dialog to resolve our differences. However, these meetings have not yet resulted in agreement with RMP's proposals. After considerable discussion and research by the Tooele Valley community, we come to the BLM expressing our concerns and common proposals to minimize the impact of this transmission line project. This letter represents the united efforts and consensus of governments and citizens from Tooele and Grantsville Cities as well as Tooele County for the unincorporated areas of Tooele Valley.

Therefore we present our proposals to the BLM along with our reasons and justification to garner your support:

- 1) We generally concur with RMP's proposed route between Mona and Terminal. However we propose transmission lines near Grantsville be limited in number and located as far west as possible.

This proposal avoids residents of Grantsville to the greatest extent.

- 2) We propose the site of the Limber Substation be relocated to northern Tooele Valley near I-80.

This reduces the impact to Grantsville to only one 500 kv line between Mona and Limber.

This proposal accommodates a better interconnection to the 500 kv grid serving the western United States. Although not a part of RMP's currently planned project, it is obvious that the Limber substation will connect to other 500 kv substations (such as the White Pine substation in eastern Nevada, or Midpoint, Cedar Hill or Populus substations in southern Idaho). Without this additional connection, Limber becomes the only 500 kv node for all of northern Utah and would be located on a dead end line. Furthermore, the western U.S. 500 kv grid has very little north-south interconnectivity inland from the west coast making a northern leg from Limber important to the grid itself. Energy corridors already exist that run along I-80 west out of Tooele Valley to accomplish this interconnection. With Limber located near I-80, connection to future 500 kv lines becomes convenient and of minimal impact.

This proposal improves the 345 kv grid serving northern Utah. The Limber to Terminal line is shortened by 12 to 17 miles having been replaced by the more efficient 500 kv line. Shorter lines between 345 kv substations result in lower impact and in higher transmission efficiency and reliability.

This proposal has a positive effect on the 138 kv grid serving Tooele County. U.S. Magnesium and ATI industrial operations at Rowley consume approximately as much power as the Tooele Valley. The existing Terminal to Rowley 138 kv line passes along I-80 through Tooele Valley and past our proposed Limber location. When connected to Limber, this line becomes a much shorter, more dependable and efficient Limber to Rowley run. It also creates a 138 kv connection between Terminal and Limber available to serve Tooele Valley WITHOUT ANY NEW LINE CONSTRUCTION. At minimal cost, service to Tooele Valley can be doubled in reliability and tripled in capacity.

This proposal simplifies power distribution within Tooele Valley. With a more central location, distribution lines from Limber to points within Tooele Valley are shorter and do not accumulate as they would to get around the Army Depot and Grantsville City in route from RMP's proposed site.

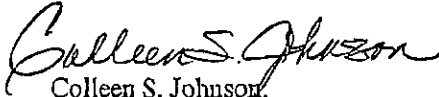
- 3) We propose the Limber to Oquirrh transmission line be routed to minimize impact to Tooele Valley's residents. This proposal concurs with Tooele City Mayor, Tooele City Council and The Citizens Committee of Tooele as well as the Tooele County Commission who are opposed to RMP's proposed routes through or south or east of Tooele City and have been designated by the same officials and citizens as unacceptable having the greatest amount of negative impact on the greatest amount of citizens. We propose these routes be eliminated for those reasons and because they are no longer practical considering a northern location for the Limber substation.


We have discussed these and other proposals with RMP. We believe RMP has overstated the costs, risks and difficulties associated with them. Existing transmission lines, substations and a 300 ft tall cell tower in northern Tooele and Skull Valleys demonstrate soil suitability. Our arguments here before the BLM are just as valid before the Public Service Commission. We call for a fair evaluation of the proposals by the BLM and a fair distribution of cost between RMP shareholders and customers.

We look forward to a formal meeting with the BLM to discuss our united Tooele Valley proposals at the earliest opportunity.

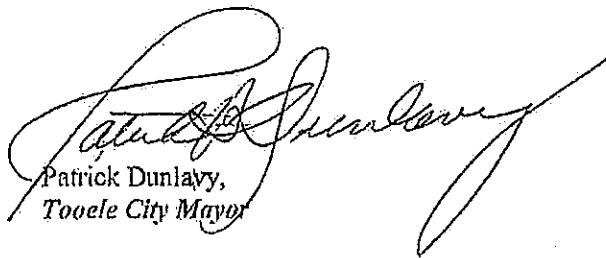
Sincerely,

Tooele County Commissioners


Colleen S. Johnson


Jerry Hurst


J. Bruce Clegg



Patrick Dunlavy,
Tooele City Mayor

Steve Pruden,
Tooele City Council Chairman

Byron Anderson
Grantsville City Mayor



Brad Pratt



Kaye Pratt

Tooele City Concerned Citizen's Group

James Vera

Glen Terry

Grantsville City Concerned Citizen's Group Representatives

cc: Rocky Mountain Power

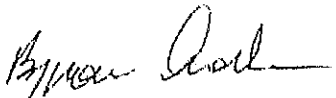
cc: Utah Public Service Commission

Patrick Dunlavy,

Tooele City Mayor

Steve Pruden,

Tooele City Council Chairman

A handwritten signature in dark ink, appearing to read "Byron Anderson", with a long horizontal stroke extending to the right.

Byron Anderson

Grantsville City Mayor

Brad Pratt

Kaye Pratt

Tooele City Concerned Citizen's Group

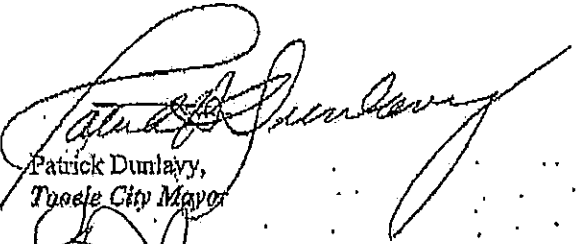
James Vera

Glen Terry

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cc: Rocky Mountain Power

cc: Utah Public Service Commission



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Tooele City Mayor



Steve Pruden,
Tooele City Council Chairman

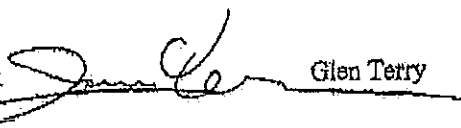
Byron Anderson
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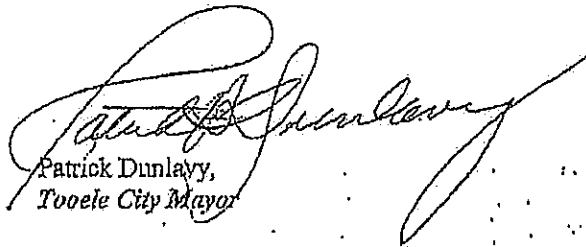


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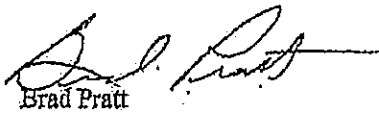
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Grantsville City Concerned Citizen's Group Representatives

cc: Rocky Mountain Power

cc: Utah Public Service Commission

Direct Testimony and Schedules
David O. Carpenter

**STATE OF MINNESOTA
OFFICE OF ADMINISTRATIVE HEARINGS
FOR THE PUBLIC UTILITIES COMMISSION**

IN THE MATTER OF THE ROUTE
PERMIT APPLICATION BY GREAT RIVER
ENERGY AND XCEL ENERGY FOR A
345 KV TRANSMISSION LINE FROM
BROOKINGS COUNTY, SOUTH DAKOTA
TO HAMPTON, MINNESOTA

PUC DOCKET NO. ET2/TL-08-1474
OAH DOCKET NO. 7-2500-20283-2

**TESTIMONY OF
DAVID O. CARPENTER**

On Behalf of
INTERVENORS
Robert and Patricia Johnson

Exhibit _____

1 **I. INTRODUCTION AND QUALIFICATIONS**

2 **Q: Please state your name and your business address.**

3 A: My name is David O. Carpenter and my business address is at University at
4 Albany, SUNY, Rensselaer, NY 12144I.

5 **Q: By whom are you employed and what is your position?**

6 A: I am a public health physician and Director of the Institute for Health and the
7 Environment at the University at Albany, SUNY. My *Curriculum vitae* is attached
8 as Schedule 1.

9 **Q: Please summarize your educational background.**

10 A: I received my Bachelors of Arts degree in 1959 *magna cum laude* from Harvard
11 College, Cambridge, Massachusetts; and my Medical Degree in 1964 *cum laude*
12 from Harvard Medical School, where I wrote a research thesis entitled
13 "Electrophysiological observations on the importance on neuron size in
14 determining responses to excitation and inhibition in motor and sensory systems,"
15 and I was awarded the Leon Resnick Prize for the Medical School graduate
16 showing promise in research.

17 **Q: Please summarize your professional research and experience, particularly as it**
18 **pertains to the area of electric and magnetic fields ("EMF").**

19 A: My professional career and research has focused on basic neuroscience, the neural
20 basis for human disease, neurotoxicology and human health effects of
21 environmental exposures, including those from exposure to ionizing and non-
22 ionizing radiation, toxic metals and organic contaminants such as polychlorinated
23 biphenyls (PCBs), dioxins and chlorinated pesticides.

1 In my position as Director of the Institute for Health and the Environment I
2 am responsible for promoting interdisciplinary research and grants relating to
3 health and the environment. Our members come from other parts of the University
4 at Albany, other universities and medical centers, and New York State agencies,
5 and have research interests in environmental health, environmental sciences,
6 environmental policy, environmental law, ecology, hazardous waste management,
7 occupational health, risk assessment, risk management, risk communication and the
8 social and psychological aspects of environmental pollution.

9 As an educator and Director, my educational mission, and that of the
10 Institute is to promote interdisciplinary research focusing on factors that produce
11 physical injury and illness, factors that lead to development blighted and
12 contaminated areas, and policies that reverse the deterioration of these areas and
13 improve the health of the residents. Greater detail on the Institute's mission and
14 programs may be found at www.albany.edu/ilhe/. I am also Professor of
15 Environmental Health Sciences and Biomedical Sciences in the School of Public
16 Health at the University at Albany, SUNY.

17 From March, 1980 until September, 1985, I was Director of the Wadsworth
18 Center for Laboratories and Research for New York State's Department of Health
19 in Albany, New York. Among other duties I was given the responsibility of
20 administration of the New York State Power Lines Project, a 5 million dollar study
21 of the health effects of power line-frequency electromagnetic fields (EMFs). One
22 of the projects supported by this program confirmed an earlier observation and

1 demonstrated an elevation in rates of childhood leukemia among children living in
2 homes with elevated magnetic fields (Savitz et al., 1988).

3 After completion of the New York State Power Lines Project I became the
4 spokesperson for New York State on the issue of human health effects of EMFs. In
5 this capacity I have served on several state and national committees on EMF issues.
6 I have co-edited two books on EMFs and have served as the co-editor of the
7 Bioinitiative Report (www.bioinitiative.org). In January 2008 I was invited to
8 testify before the President's Cancer Panel on the issue of exposure to EMF and
9 cancer.

10 II. ANALYSIS OF IMPACTS OF EMF ON HUMAN HEALTH

11 **Q: Have you prepared a comprehensive report regarding the effects of EMF on**
12 **human health?**

13 **A:** I published a comprehensive review of the literature pertaining to electromagnetic
14 field exposures in the peer-reviewed journal, *Reviews on Environmental Health* in
15 2008, which is attached as Schedule 2. This journal article was not designed to
16 meet the needs of any public or private client or to serve the outcome in any
17 proceedings, but to summarize the current state of national and international
18 research regarding electromagnetic field exposures and to recommend prudent
19 public health policy. Many of the references discussed in my testimony are also
20 referenced in this journal article.

21 **Q: Could you please summarize your professional opinion regarding the health**
22 **effects of magnetic fields from high voltage power lines.**

1 A: My professional opinion as a public health physician, medical researcher and
2 educator specializing in study of ionizing and non-ionizing radiation effects on
3 biological systems is as follows:

4 1) There is strong scientific evidence that exposure to magnetic fields from
5 power lines greater than 4 milligauss ("mG") is associated with an
6 elevated risk of childhood leukemia.

7 2) Some studies have demonstrated significant elevations in childhood
8 leukemia when comparing children living in homes with 2 mG exposure
9 as compared to those in homes with 1 mG of exposure. There is sufficient
10 scientific evidence to cause concern about leukemia risks at exposures
11 above 2 mG.

12 3) There is some evidence that occupational and residential exposure to
13 magnetic fields is associated with cancer in adults as well, particularly
14 brain cancer. There is strong scientific evidence that lifetime exposure to
15 magnetic fields in excess of 2 mG is associated with an increased risk of
16 neurodegenerative diseases in adults, including Alzheimer's disease and
17 amyotrophic lateral sclerosis (ALS).

18 4) While there is a debate as to which mechanisms are responsible, and there
19 no specific animal model for the way in which magnetic fields cause
20 cancer, there is a large body of evidence of ways in which magnetic fields
21 affect tissue at a cellular level which may be the basis for the development
22 of cancer and neurodegenerative disease.

1 5) There is no reliable evidence that power-line magnetic fields do not cause
2 cancer, and a large body of evidence that power-line magnetic fields do
3 cause adverse human health impacts, including cancer.

4 7) Prudent public health policy requires minimizing the effects of power line
5 magnetic fields on human health.

6 **Q. Have you reviewed the testimony of Dr. Peter Valberg in this matter?**

7 A. I have reviewed both Dr. Valberg's written testimony and the report he prepared
8 for the CapX2020 utilities in connection with these administrative proceedings.

9 **Q. What is your assessment of Dr. Valberg's opinions reflected in these**
10 **documents?**

11 A. The arguments made by Dr. Valberg are not new. Similar arguments have been
12 made by certain researchers and on behalf of industries involved in the generation
13 of magnetic fields for many years. They are similar to the arguments which I
14 addressed in the comprehensive review of literature published last year in *Reviews*
15 *on Environmental Health*. I find these arguments to be false, inaccurate and not
16 supported by a comprehensive and disinterested review of the scientific evidence.

17 **Q. Could you please explain the key arguments made to oppose a finding that**
18 **magnetic fields increase health risks and the scientific evidence you believe is**
19 **most pertinent to respond to these arguments?**

20 A. The first argument made is that evidence for elevated risk of childhood leukemia
21 from exposure to power line EMF is "weak and inconsistent." Reports from leading
22 research organizations do not support this argument.

- 1 1) The U.S. National Academy of Science, National Research Council
2 report (1997) stated that the link between power line wire-code rating and
3 childhood leukemia "is statistically significant (unlikely to have arisen
4 from chance) and is robust" in the sense that removing a study from the
5 group does not alter the conclusion that an association exists.
- 6 2) The introduction to the National Institute of Environmental Health Sciences
7 EMF-RAPID program (1999) report summarized:
8 "The strongest evidence for health effects comes from associations
9 observed in human populations with two forms of cancer: childhood
10 leukemia and chronic lymphocytic leukemia in occupationally exposed
11 adults. While the support from individual studies is weak, the
12 epidemiological studies demonstrate, for some methods of measuring
13 exposure, a fairly consistent pattern of a small, increased risk with
14 increasing exposure that is somewhat weaker for chronic lymphocytic
15 leukemia than for childhood leukemia."
- 16 3) The 2007 World Health Organization report, while questioning the
17 experimental evidence of mechanism, stated that the epidemiological data
18 "show an association between ELF magnetic field exposure and an
19 increased risk of childhood leukemia."

20 As explained above, all three reports have accepted the demonstration of a
21 statistically significant relation between exposure to elevated magnetic power line
22 fields and childhood leukemia. This conclusion is supported by at least three
23 recent meta-analyses of the relation between childhood leukemia and EMFs.

1 **Q. What was found in these meta-analyses of the relation between childhood**
2 **leukemia and magnetic fields?**

3 A. Wartenberg (1998) reported on 16 epidemiologic studies, considering reports using
4 the Wertheimer and Leeper (1979) wire codes as well as measured fields, and
5 concluded that "the observed results identify a consistent risk that cannot be
6 explained by random variations." Two other recent meta-analyses found a
7 statistically significant elevated risk of childhood leukemia from exposure to
8 magnetic fields. Greenland et al. (2000) reported a significantly elevated risk of
9 1.68 (68% increase in childhood leukemia) based on pooled results from 12 studies,
10 using a time-weighted average of exposure greater than 3 mG (0.3 μ T) and Ahlbom
11 et al. (2000) reported on nine studies, and found a elevated risk of 2.0 (doubling of
12 incidence) for exposures equal or greater than 4 mG (0.4 μ T) as compared with less
13 than 1 mG (0.1 μ T).

14 These reports are important in that they show consistency of a clearly
15 elevated risk of leukemia in children with magnetic field exposure from power-line
16 fields in their homes. Several recent studies of a dose-dependent relationship
17 between power line exposure and leukemia serve to confirm the likelihood of
18 causation.

19 **Q. Why is it significant if studies show a dose-dependent relationship?**

20 A. In epidemiology, a dose-dependent relationship is usually considered the gold
21 standard in determining whether an association reflects a causal relationship. If an
22 effect becomes more pronounced as the dose increases -- whether the dose is

1 milligrams of a chemical or milligauss of a magnetic field – causation is much
2 more likely.

3 Several recent studies add to the conclusion that the relationship between
4 magnetic field exposure and leukemia is strong by demonstrating this type of dose
5 dependence. Draper et al. (2005) studied rates of leukemia in children in relation to
6 proximity of their homes to high-voltage power lines. The investigators found a
7 dose-dependent relationship, with relative risk being 1.69 (69 % increase) for
8 children living within 200 meters of a high voltage power line as compared to those
9 living more than 600 meters from the line, and the relative risk being 1.23 (23%
10 increase) for children living from 200 to 600 meters from the line as compared with
11 those more than 600 meters away. The trend of increased risk based on closeness to
12 the power line was statistically significant ($p < .01$).

13 Foliart et al. (2006) examined the relation between magnetic field exposure
14 and the survival of children with acute lymphoblastic leukemia in the United States
15 and found a hazard ratio of 4.5 (four and a half times the risk) for children exposed
16 to greater than 3 mG (0.3 μ T) magnetic fields as compared with those having
17 exposure to less than 1 mG (0.1 μ T). Svendsen et al. (2007) performed a similar
18 study of German children with leukemia, and reported a hazard ratio of 2.6 (more
19 than two and a half times the risk) for the survival of children with acute
20 lymphoblastic leukemia exposed to 2 mG (0.2 μ T) during recovery as compared
21 with those exposed to less than 1 mG (0.1 μ T).

22 **Q. Is there any scientific evidence that the fetus or child is at greater risk from**
23 **magnetic fields than are adults?**

1 A. The scientific literature demonstrates clearly that the fetus and young children are
2 at greater risk than are adults, and that early life exposure may result in cancer
3 many years later. Lowenthal et al. (2007) compared incidence of adult lympho-
4 proliferative and myeloproliferative cancers in relation to childhood residence and
5 found an increased risk of 3.23 (more than three times the risk) for adults who lived
6 within 300 meters of a high-voltage power line during the first 15 years of life. For
7 those who lived within 300 meters of a power line in the first 5 years of life, the
8 increased risk was 4.74 (nearly five times the risk), providing support for the
9 hypothesis that younger children are more at risk, and that the resultant disease may
10 occur many years later during adulthood. Infante-Rivard and Deadman (2003)
11 showed that maternal exposure during pregnancy increased the risk of children 0-9
12 years of age developing leukemia, with a risk factor of 2.5 (two and a half times the
13 risk) for children of mothers in the highest 10% of exposure.

14 These findings are consistent with a large body of information showing that
15 the fetus and young child are more vulnerable than older persons are to chemicals
16 and ionizing radiation. This susceptibility may be why the evidence for the relation
17 between magnetic field exposure and leukemia in children is stronger than that for
18 adults. The evidence for a relation between childhood exposures to magnetic fields,
19 whether determined from residential wire codes or measured magnetic fields, and
20 elevated rates of leukemia is consistent. The limitations in the exposure assessment
21 (consideration of only residential exposure from external power lines) are such that
22 one would expect that studies have underestimated rather than overestimated the
23 actual risk.

1 **Q. Is the public health impact of the risk from power line magnetic fields**
2 **significant?**

3 A. Some commenters have suggested that only a small number of children are affected
4 so that public health concerns are not substantial. This argument is not correct
5 because we do not know precisely how many children are affected with leukemia
6 resulting from of EMF exposure. In 1988, Carpenter and Ahlbom estimated that as
7 much as 10% to 15% of US childhood leukemia (about 1,000 cases) could be
8 associated with residential magnetic field exposure from external power lines.
9 Some estimates are even higher (Milham and Osslander, 2001). In the meta-
10 analyses mentioned above, however, Greenland et al. (2000) calculated the
11 attributable fraction of cases of childhood leukemia from residential magnetic field
12 exposure in the US to be 3%. The recent WHO Environmental Health Criteria ELF
13 Monograph #238 (2007) states, that if the association between childhood leukemia
14 and exposure to power lines is causal, the number of cases of childhood leukemia
15 worldwide that might be attributable to exposure can be estimated to range from
16 0.2 to 4.9% of the total annual incidence of leukemia cases. It should be noted that
17 exposure to other household sources of magnetic fields also elevate the risk of
18 childhood leukemia.

19 **Q. How high do magnetic fields need to be to increase the risk of childhood**
20 **leukemia?**

21 A. In my professional opinion, the evidence for a relation between exposure and
22 childhood leukemia may be considered to be definitive at exposure levels of 3 or 4
23 mG (milligauss) or higher. Evidence from some, but not all, of the scientific studies

1 indicates an elevated risk at levels greater than 2 mG (Savitz et al., 1988; Green,
2 1999). No evidence has been reported that exposures at lower levels are "safe," as
3 persons with such exposures usually serve as the "control" group. I would suggest
4 that magnetic fields of 2 mG raise some health concerns, although the evidence of
5 risk is not conclusive.

6 **Q: Is it a concern that studies generally have used residential distance from**
7 **power lines rather than measurements of actual magnetic fields?**

8 A. To completely determine the risk of exposure to magnetic fields, it would be
9 desirable to study the full range of residential, occupational (or school) and
10 recreational exposures to the full range of the electromagnetic spectrum, including
11 electric devices as well as power lines. It is my opinion that, if such a study were
12 constructed, the overall magnitude of the risk of magnetic fields to both children
13 and adults would be higher, not lower, than what currently available research
14 demonstrates.

15 **Q. Is there any evidence of adult disease associates with magnetic field exposures?**

16 A. The level of evidence definitively proving an association between exposure to
17 magnetic fields and adult cancer is less strong than the relation with childhood
18 leukemia. Several studies show statistically significant relations between
19 occupational exposure to magnetic fields and leukemia in adults despite limitations
20 in exposure assessment. Elevations in the rates of leukemia following occupational
21 exposure to elevated EMF have been reported in review articles (Savitz and
22 Ahlbom, 1994) and in a meta-analysis (Kheifets et al., 1997). Savitz and Loomis
23 (1995) did not find any elevation in risk of leukemia in a study of 138,905 electric

1 utility workers. Minder and Pfluger (2001) report elevated leukemia mortality
2 among Swiss railway employees exposed to magnetic fields, whereas Harrington et
3 al. (2001) reported no elevated rates of leukemia among UK electricity generation
4 and transmission workers when compared with the rest of the UK population.

5 In a review study, Miller et al. (1997) reported that of 124 studies reporting
6 odds ratios for leukemia in relation to occupations associated with electricity, 41
7 showed a significant elevation, and 4 showed a dose-response relation. Feychting et
8 al. (1997) investigated adult leukemia in relation to magnetic field exposures in the
9 home and at work. The investigators found no relation between residential
10 exposure alone and only a non-significant elevation of risk of leukemia with
11 occupational exposure alone. However, when both residential and occupational
12 exposures were considered, the authors reported a significant elevation of risk of all
13 leukemias with an odds ratio of 3.7 (more than 300 percent increase in risk).

14 In adults, the evidence for a relation between magnetic field exposure and
15 cancers other than leukemia is strongest for brain cancer. Kheifets et al. (1995)
16 performed a meta-analysis of 29 reports of brain cancer found statistically
17 significant elevations for electrical engineers, welders, and power station workers.
18 Rodvall et al. (1998) investigated glioma and meningioma in Sweden in relation to
19 job title, and reported only non-significant elevations of both cancers in relation to
20 measured magnetic fields. Villeneuve et al. (2002) also reported only non-
21 significant elevations in rates of overall brain cancers in relation to residential
22 exposure to magnetic fields, but found a highly significant relationship among men
23 diagnosed with a specific brain cancer -- glioblastoma multiforme.

1 The evidence for a relation between magnetic field exposure and breast
2 cancer is relatively strong in men (Erren, 2001), and some, (Zhu et al., 2003;
3 Kliukiene et al., 2004) but by no means all (Schoenfeld et al., 2003) studies show
4 female breast cancer also to be significantly elevated with increased exposure.
5 Peplonska et al. (2007) recently found increased risk of breast cancer in women
6 occupationally exposed to elevated magnetic fields.

7 Overall, although the evidence is less conclusive than for childhood
8 leukemia, the weight of the scientific research suggests that it is likely that
9 magnetic fields increase the risk of certain cancers in adults, as well as in children.

10 **Q. Are there any non-cancer health risks of magnetic fields to adults?**

11 **A.** There is strong evidence of an association between EMF exposure and the
12 neurodegenerative diseases Alzheimer's and amyotrophic lateral sclerosis (ALS).
13 For Alzheimer's disease, Qiu et al. (2004), Feychting et al. (2003) and Hakansson
14 et al. (2003) found a statistically significant elevated risk with EMF exposure,
15 approximately two or three times the incidence in a control population. For ALS,
16 Savitz et al. (1998) and Hakansson et al. (2003) found a statistically significant
17 increased risk, again approximately two to three times the incidence in a control
18 population. Roosli et al. (2007) looked at neuro-degenerative diseases among Swiss
19 railway employees exposed to magnetic fields. For every 10 μ T years of
20 cumulative exposure the authors found Alzheimer's disease risk to increase by
21 9.4%. No elevated risk was found for Parkinson's disease or multiple sclerosis.
22 Garcia et al. (2008) analyzed 14 different studies of EMF exposure and Alzheimer's
23 disease and found a consistent pattern of elevated risk.

1 **Q. How would you characterize the risk of magnetic fields to adults?**

2 A. In total, the scientific evidence for adult disease, especially leukemia, brain cancer,
3 Alzheimer's disease and ALS, associated with EMF exposure is sufficiently strong
4 that preventive steps are not only appropriate but also called for. I've reached this
5 conclusion based on the epidemiologic evidence, understanding all of the limits in
6 study design and exposure assessment. In epidemiology, discounting the positive
7 studies just because not every investigation shows a positive result is inappropriate.
8 Although further research should be conducted with better exposure assessment
9 and controls, the evidence for a relation between EMF exposure and adult cancer
10 and neurodegenerative diseases is sufficiently strong at present to merit preventive
11 actions to reduce exposure.

12 **Q. How do you respond to the argument that there is no laboratory animal study**
13 **that reliably demonstrates adverse health changes in response to electric**
14 **power line magnetic field levels?**

15 A. It is correct to say that no adequate animal model system is available that
16 reproducibly demonstrates the development of cancer in response to exposure to
17 EMFs at the various frequencies of concern. However, it should be pointed out, as
18 Kheifets et al. (2005) did in their policy review, that there is no good animal model
19 for childhood leukemia itself and that the limitations of laboratory studies make it
20 difficult to detect risks. In this article, after describing some of the limitations of
21 laboratory data, the authors concluded, based on the weight of evidence approach
22 and incorporating different lines of scientific enquiry, that epidemiologic evidence,
23 as most relevant, should be given the greatest weight. Interestingly, recent studies

1 have demonstrated that pet dogs living in homes characterized by high or very high
2 wire codes as compared with those in homes with low wire codes or buried power
3 lines have increased rates of lymphoma at a level that is statistically significant.
4 (Reif et al., 1995).

5 **Q. How do you respond to the argument that scientists have not been able to**
6 **establish a mechanistic model to explain how magnetic fields from power lines**
7 **cause adverse health effects, such as cancer?**

8 A. As a physician and a scientist, the lack of mechanistic model is neither surprising
9 nor significant in evaluating whether EMF exposures increase the risk of cancer.
10 Although we know a lot about cancer, we do not know the mechanism of cancer in
11 general. We know the mechanisms of action for certain carcinogenic substances,
12 but for most cancers, we know neither the environmental trigger nor the precise
13 mechanism of action.

14 It came as a major surprise to most scientists when Lichtenstein et al.
15 (2000) concluded from their study of identical twins that environmental factors
16 were the initiating event in the majority of cancers. One human study has
17 demonstrated a genetic mechanism for childhood acute myeloid leukemia. Yang et
18 al. (2008) found that children who live within 100 meters of a power line or
19 transformer and have a certain gene (the XRCC1 Ex9 + 16A allele of a DNA repair
20 gene) have an increased risk 4.31 times greater (over 400 percent increase) of
21 developing leukemia than children with the same exposure that did not have this
22 gene. This is the first study demonstrating a genetic-environment interaction as a
23 basis of human cancer from exposure to EMFs.

1 We also do not know the mechanism or cause for the development of
2 Alzheimer's disease or ALS. We do know that both are more common in
3 individuals in certain occupations and that exposure to certain metals is associated
4 with increased risk. In the case of Alzheimer's disease, abnormalities of amyloid β
5 and the tau protein have been found, but the understanding of why or how they
6 form is very limited.

7 **Q. Are there any effects on biological tissue as a result of EMF at levels similar to**
8 **power line exposures?**

9 A. Clear evidence has emerged that EMFs alter cell physiology and function.
10 Electromagnetic fields (60 Hz) inhibit differentiation of an erythroleukemia cell
11 line, affect gene transcription (Leszczynski et al., 2002; 2004; Olivares-Banuelos et
12 al., 2004; Lupke et al., 2006; Zhao et al., 2007), induce the synthesis of stress
13 proteins (Goodman and Blank, 2002; Tokalov and Gutzeit, 2004), and cause
14 breakage of DNA (Svedenstal., et al., 1999; Ivancsits et al., 2003), probably
15 through the generation of reactive oxygen species (Lai and Singh, 1995; 2004).
16 Any one of these actions might be responsible for the carcinogenic and/or neuro-
17 degenerative actions of EMFs. As with many environmental agents, however,
18 assuming that only one mechanism of action exists would be a mistake, particularly
19 where more than one disease is involved. It is more likely that multiple
20 mechanisms of action would contribute to disease.

21 **III. RECOMMENDATIONS AND CONCLUSION**

22 **Q. What significance does the information about a mechanism by which EMF**
23 **could cause disease have for public health decisions?**

1 A. How, precisely, EMF or magnetic fields are responsible for increased risks of
2 childhood leukemia or neurodegenerative disease may be a subject of debate within
3 the scientific community, but from a public health point of view, this controversy
4 does not matter. Persons responsible for the public health of communities need to
5 take appropriate action and exercise appropriate caution to protect public health
6 whether or not scientists can agree on the mechanisms causing the adverse effects
7 observed in human beings.

8 Q. **What would you conclude is needed as public health measures to reduce the**
9 **risks to human health associated with power lines?**

10 A. I would conclude that exposure for prolonged periods of time to magnetic fields
11 above 2 to 4 mG from power lines is associated with increased risk of cancer,
12 especially leukemia, and children are most vulnerable. In addition magnetic field
13 exposure increases the risk of neurodegenerative diseases, including Alzheimer's
14 Disease and amyotrophic lateral sclerosis. There is no known threshold below
15 which magnetic fields should be assumed to have no adverse effects, and exercising
16 reasonable precaution is appropriate in making public health decisions. From this
17 perspective, I would recommend the following:

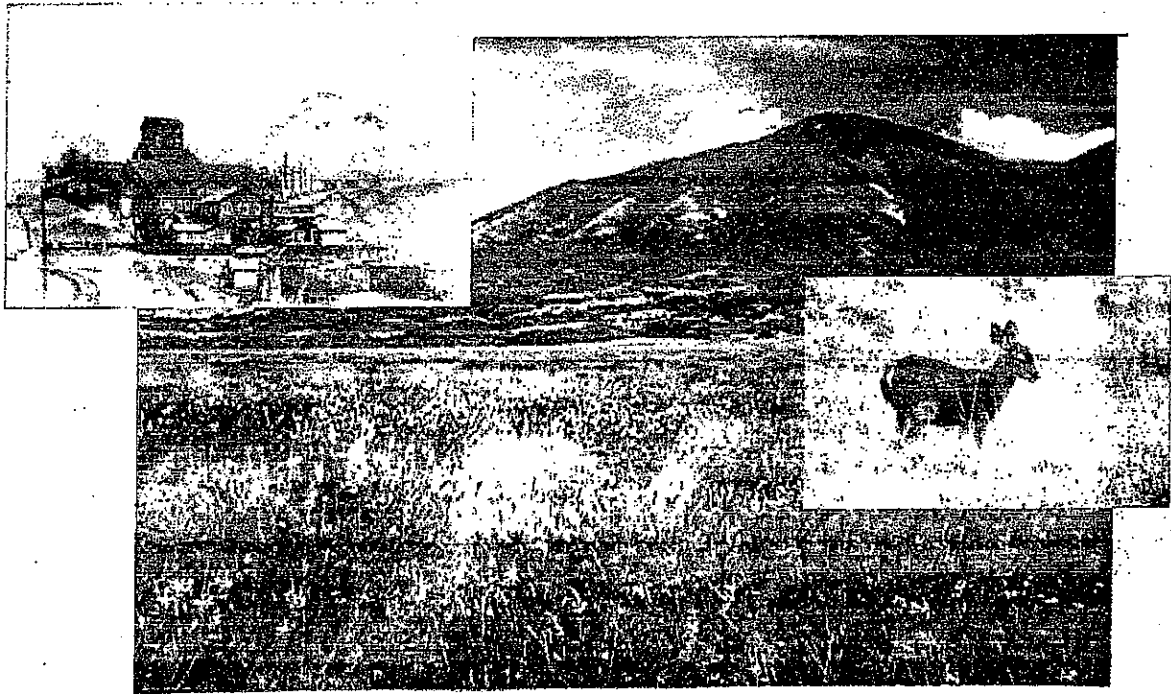
18 1) Information should be obtained for the specific power line and its various
19 segments regarding the calculated magnetic field strength at various distances from
20 the centerline, in particular the distances at which magnetic fields decline below 4
21 milligauss (mG) and 2 mG.

22 2) In my opinion any long-term exposure to magnetic fields above 2 mG is
23 abnormally high and poses a risk to the health of residents. I believe that long-

International Smelting and Refining Superfund Site

Tooele, Utah

Record of Decision



INTERNATIONAL SMELTING AND REFINING SUPERFUND SITE

EPA CERCLIS NO. UTD093120921

TOOELE, UTAH

PART I

DECLARATION OF THE RECORD OF DECISION

SITE NAME AND LOCATION

The International Smelting and Refining (IS&R) Superfund Site is located just east of Tooele, Utah. The IS&R Site (Figure 1-1) occupies the lower portion of Pine Canyon on the west flank of the Oquirrh Mountains approximately two miles northeast of Tooele in Tooele County, Utah, at latitude 40°33' and longitude 112°15'. The site includes the former smelter property known as the Pine Canyon Conservation Area, portions of the Tooele Valley Railroad (TVRR) grade, and the local community and surrounding area adjacent to the land owned by Atlantic Richfield Company (formerly ARCO), locally referred to as Lincoln Township or Pine Canyon.

The U. S. Environmental Protection Agency (EPA) Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) site identification number is UTD093120921.

STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedy for the IS&R Site. The selected remedy has been chosen in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, 42 U. S. Code (USC) §9601 et. seq. as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR Part 300. This decision is based on the Administrative Record for the IS&R Site and, to the extent practicable, in accordance with the NCP.

The remedy was selected by EPA Region 8. The Utah Department of Environmental Quality (UDEQ) concurs with the selected remedy.

ASSESSMENT OF THE SITE

The response action selected in this Record of Decision (ROD) is necessary to protect the public health and welfare or the environment from actual or threatened releases of hazardous substances into the environment. Such release or threat of release may present an imminent and substantial endangerment to public health, welfare, or the environment.

DESCRIPTION OF THE SELECTED REMEDY

The selected remedy for the IS&R Site addresses smelter wastes, including tailings and contaminated soils. The selected remedy consists of monitoring and institutional controls to protect the integrity of the previously completed reclamation and Removal Actions.

Previously implemented reclamation and Removal Actions include capping of contaminated soils within the conservation area and portions of the TVRR grade, and soil removal in the conservation area, Pine Canyon community, and on portions of the TVRR

grade. Removal Actions also included repair of erosion rills and construction of new storm water berms and channels.

The current conservation easement on the conservation area (former IS&R smelter and surrounding land owned by Atlantic Richfield) will remain in place. The easement was established by Atlantic Richfield and the State of Utah, Department of Natural Resources, Division of Wildlife Resources. The easement is an agreement to preserve and protect the wildlife, natural, scenic, open space, and educational values of the property. The easement will prevent any use of the property that might significantly impair or interfere with the wildlife habitat or other conservation values. Activities that would impact existing remedial features are prohibited, such as drilling and exploration, filling, excavating, mining, dredging, removal of top soil and other materials, and commercial, industrial and agricultural use as set forth in the conservation easement. Institutional controls (ICs) are needed to supplement the easement and to ensure it specifically addresses and protects the existing remedial features. Examples include further deed restrictions or modification of the conservation easement. In addition, upgraded engineering and updated informational controls, such as perimeter fencing and signage, will continue to be maintained by the Utah Division of Wildlife Resources and will help limit unauthorized use of the property. The performance and adequacy of the ICs will be reviewed by the County on a periodic basis.

For Pine Canyon, institutional controls consisting of governmental ordinances and permit programs administered through the Tooele County Building Department and the Tooele County Health Department are expected to apply to future developable areas where metal concentrations are below recreational cleanup levels but above residential human health cleanup levels, as set forth in this ROD. ICs through the Tooele County building and health departments are also expected to apply to existing development where soil contaminants in excess of cleanup levels might be disturbed during property modifications. Undeveloped lands are being developed and proposed for development in the vicinity of Pine Canyon. As these lands become developed, particularly for residential purposes, the levels of lead and arsenic may become a matter of concern. Some of the land may require remedial action prior to being developed for residential purposes. Properties with existing development that will undergo modifications may also require remedial measures to avoid unacceptable human exposures to soil contaminants. The Tooele County building and health departments will have a process for developers and landowners to follow. Atlantic Richfield, developers, or landowners seeking to change the use of undeveloped land, such as from agricultural to residential, recreational visitor, or commercial uses, will be required to meet all requirements and specifications for the new use. The Tooele County health and building departments, with assistance as necessary from EPA and UDEQ, are expected to enforce the ICs for soils in these developable areas.

For the TVRR grade, currently existing ICs are limited to private party agreements with the landowners and Atlantic Richfield and are required to limit future development and activities from penetrating the rock cover. Additional ICs, for example, county ordinances and deed restrictions, are necessary to supplement the existing controls and

are required to limit future development and activities from penetrating the rock cover. The selected remedy will ensure the performance and enforceability of such ICs and agreements. The performance and adequacy of the ICs will be reviewed by EPA on a periodic basis.

Monitoring will be required for all three areas of the site. Monitoring by Atlantic Richfield will consist of checking the integrity of the caps, covers, and storm water controls on a regular basis. Atlantic Richfield will monitor and maintain the conservation area because it is owned by the company, and the TVRR grade capped areas. Groundwater monitoring will be conducted at the conservation area to ensure that the former smelter area does not become a source of groundwater contamination in the future. In addition, EPA and UDEQ will monitor the institutional controls to ensure they remain in place and serve their intended purpose.

Because the preferred alternative does not allow for unlimited use and unrestricted exposure, the IS&R Site will be subject to five-year reviews of how well the remedy is meeting the objectives.

STATUTORY DETERMINATIONS

The selected remedy for the IS&R Site is protective of human health and the environment, complies with federal and state requirements that are applicable or relevant and appropriate for the remedial action, is cost effective, and utilizes permanent solutions and alternative treatment technologies to the extent practicable.

The selected remedy does not satisfy the statutory preference for treatment as a principal element of the remedy. Treatment was not demonstrated to be practicable for the contaminants and wastes. Given the size of the site, the dispersion of some level of waste throughout much of the site, the type of waste present, and the flexibility desired for future site use, treatment of contaminants and waste materials was not the most preferred option. No source materials constituting principal threats have been identified on the site. Treatment is therefore not a principal element of this remedy.

Because this remedy will result in hazardous substances, pollutants, or contaminants remaining on site above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted within five years after initiation of the remedial action to ensure that the remedy is, or will be, protective of human health and the environment.

ROD DATA CERTIFICATION CHECKLIST

The following information is included in the decision summary section of this ROD. Additional information can be found in the Administrative Record for this site.

- Contaminants of concern (COCs) and their respective concentrations (Sections 5.3 and 7.1)
- Baseline risk represented by the COCs (Section 7)

- Preliminary remediation goals (PRGs) established for COCs and the basis for the levels (Section 7.1.7)
- Whether source materials constituting principal threats are found at the site (Section 11)
- Current and future land and ground water use assumptions used in the Baseline Risk Assessment and ROD (Section 6)
- Potential land and ground water use that will be available at the site as a result of the selected remedy (Section 6)
- Estimated capital, operation and maintenance (O&M), and total present worth costs; discount rate; and the number of years over which the remedy cost estimates are projected (Section 9)
- Key factors that led to selecting the remedy (Section 12.1)

AUTHORIZING SIGNATURE AND SUPPORT AGENCY ACCEPTANCE OF REMEDY

This ROD documents the selected remedial action to address the contamination at the International Smelting and Refining Superfund Site.

EPA, as the lead agency for the IS&R Site (UTD093120921), formally issues this ROD.

Carol Rushin
Assistant Regional Administrator
Office of Ecosystems Protection and Remediation
U. S. Environmental Protection Agency, Region 8

Date

The UDEQ, as the supporting agency for the IS&R Site, formally concurs and adopts this ROD.

Richard W. Sprott
Executive Director
Utah Department of Environmental Quality

Date



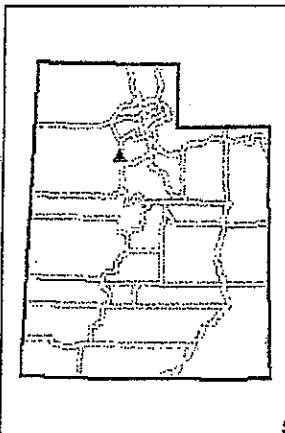
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Superfund Program

International Smelting and Refining



Site Type: Final NPL
 City: Tooele
 County: Tooele
 Street Address: 2.5 miles NE of Tooele
 Zip Code: 84070
 EPA ID#: UTD093120921
 Site ID#: 0800650
 Site Aliases: Carr Fork Operations
 Congressional District: 01

What's New?

EPA Announces Record of Decision and Construction Complete for Site

The U.S. Environmental Protection Agency (EPA) signed a Record of Decision and declared that construction is complete for the site on September 27, 2007. The Record of Decision documents EPA's selected remedy for the Conservation Area (former smelter property), Pine Canyon and the former Tooele Valley Railroad property.

The remedy takes into account all previously completed removal work and includes no further remedial construction. It includes implementation of institutional controls and monitoring as needed to protect the integrity of the previously completed removal and remedial actions.

Copies of the [Record of Decision](#) and other [Site Documents](#) that led to EPA's remedy selection are available for public review online or at the Information Repository that contains the Administrative Record: Tooele City Library, 128 West Vine Street, Tooele, UT 84074; (435) 882-2182

National Information

- [Superfund](#)
- [Cleanup Process](#)
- [Community Involvement](#)
- [Superfund News](#)

Regional Information

- [Superfund Basics](#)
- [R8 Superfund Sites](#)
- [Regional Response Teams](#)
- [Site Assessment](#)
- [Risk Assessment](#)
- [Five-Year Reviews](#)
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- [Superfund Contacts](#)

Site Information

- [What's New?](#)
- [Site Description](#)
- [Site Risk](#)
- [Cleanup Progress](#)
- [Community Involvement](#)
- [Site Documents](#)
- [Contacts](#)

National Priorities List (NPL) History

Proposed Date
4/23/1999

Final Date
7/27/2000

Frequently Asked Questions

What are Institutional Controls, and Why Does the Record of Decision Call for Them in Pine Canyon

Under Superfund, institutional controls are administrative or legal controls such as local government ordinances or environmental covenants, designed to minimize the potential for people to be exposed to contaminants. ICs also are used to protect constructed remedies, and to provide notices or information to the public. Sometimes referred to as community protective measures, ICs are necessary anytime a remedy involves leaving waste in place. People encounter ICs or similar measures every day, such as being required to apply for a building permit prior to beginning a home renovation.

ICs are needed in Pine Canyon for two reasons: 1) to ensure that significant modifications to properties that were sampled and/or remediated don't negatively impact the condition of the soils, and 2) to protect the health of people who may live in currently underdeveloped areas in the future.

Why would ICs be Needed at Properties That Were Cleaned Up?

EPA does not anticipate the need for further work at the properties that were sampled and/or clean up during the Removal Action conducted by Atlantic Richfield. EPA's investigation concluded that the contaminants were mainly deposited on the surface of property and were transported by wind or surface floodwater events from the former smelter area.

However, there are some activities that could potentially change the condition of the soil surrounding a home or structure that was previously remediated. Examples include replacing an existing structure with a new one. If property owners undertake these types of activities, Tooele County may require additional soil cleanup if modifications to the property warrant.

How Might the ICs Impact Residents Financially?

While EPA believes it is unlikely that residents would encounter unsafe levels of contaminants, EPA is currently working with Tooele County on a grant to support the establishment and enforcement of institutional controls. Also, Atlantic Richfield will make available a repository to accept soils removed in the future. This also is expected to help keep costs to residential property owners to a minimum.

Why Weren't Undeveloped Properties Cleaned Up?

Because concentrations of lead and arsenic in undeveloped (farm and open space) areas were below recreational cleanup levels at the time of the Removal Action in Pine Canyon, undeveloped areas did not require remediation. When land use for these areas changes to residential, Tooele County may ask property developers to undertake additional sampling. If sample results indicate it is necessary to protect future residents who live on the property, developers may be required to conduct additional cleanup work. In addition, government ordinances and permit programs administered through the county building department and health department are expected to apply to future developable areas. Some of the land may require cleanup action by the developer prior to development for residential purposes.

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Site Description

The International Smelting and Refining (IS&R) site is located on the west flank of the Oquirrh Mountains near the mouth of Pine Canyon. It is approximately 2 miles northeast of Tooele, in north-central Utah. The canyon is drained by Pine Creek.

Copper smelting began in 1910. The smelter had a capacity of 4,000 tons of copper ore per day. Two years later copper ore supplies declined and IS&R built a lead smelter. In 1915 Anaconda (now ARCO - the Atlantic Richfield Company) purchased the IS&R subsidiary. Over several years the owners added a lead-zinc sulfide flotation mill and a slag treatment plant for lead and zinc recovery. Copper production ceased in 1946 when the copper smelter closed. Lead smelting ceased in early 1972 and the site was reclaimed in 1986. An estimated 650,000 tons per year of tailings, slag and flue dust were produced during early operations at the IS&R site.

Emissions of metal-containing smoke and acid gases were reported during IS&R operations. Livestock deaths in the area of the site were attributed to arsenic, lead and sulfuric acid poisoning. UDEQ (Utah Department of Environmental Quality) documented 20 cattle deaths due to cadmium poisoning. During a 1985 site inspection, EPA noted dust blowing off tailings.

The site covers about 1,200 acres. There are approximately 330 acres of tailings, 27.5 acres of metals-contaminated slag, 13 acres of settling ponds, about 50 acres of landfills and 125 acres of smelter wastes. Investigations indicate the presence of arsenic, cadmium, copper, lead, mercury and zinc in the soils, tailings and slag.

Soils in Pine Canyon, Utah (formerly Lincoln), about 1.5 miles northwest of the site, have been affected by emissions from the site. A 1985 EPA study documented dust blowing off tailings piles and during a 1996 UDEQ study, children were observed playing on bare soils. The site is accessible and used (illegally) by off-road motorcyclists and all-terrain vehicle users. The area surrounding and including the IS&R site was designated the "Carr Fork Reclamation and Wildlife Management Area" in 1994.

As part of a Reclamation/Stabilization Plan, ARCO demolished all the buildings on-site, consolidated and isolated waste, graded the site with uniform slopes to minimize erosion and planted a vegetated cover. After the reclamation effort ARCO entered into a conservation easement agreement with the Utah Division of Wildlife Resources to manage the site for wildlife habitat and conservation values.

UDEQ performed an Expanded Site Inspection (ESI) in 1996. Results indicated that the soil cap over numerous source areas was eroding or poorly vegetated. The source areas did not have containment features, and numerous tailings piles were deposited along the banks of Dry Creek, a drainage south of the site and Pine Creek. Data from the ESI indicated metals in soil, surface water and ground water.

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Site Risk

Media Affected	Contaminants	Source of Contamination
Soil	Arsenic, cadmium, copper, lead, mercury, zinc	Smelting wastes

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Cleanup Progress

Residential cleanup activities began in October of 2004 in Pine Canyon. Atlantic Richfield, the potentially responsible party, agreed to conduct the work as a Removal Action based on soil sampling that occurred in Pine Canyon during

2003 and 2004. The soil sampling determined that residential soils at 17 homes had average levels of lead above the EPA's action level of 580 parts per million. Atlantic Richfield completed the 17 yard cleanups during 2005.

The EPA and Utah Department of Environmental Quality (UDEQ) completed a Remedial Investigation and Feasibility Study in 2007. The EPA signed a Record of Decision and declared that construction is complete for the site on September 27, 2007. EPA is currently working with Tooele County on a grant to support the establishment and enforcement of institutional controls.

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Community Involvement

The EPA maintains regular contact with members of the community and implements a variety of community relations activities as new information becomes available. This includes distributing fact sheets and fliers, meeting with community members and local officials and sharing information with the local media.

A Community Advisory Group was formed shortly after the site was listed and continues to meet on an as-needed basis. Meetings are usually held at the Tooele County Health Department.

Residents who are concerned about children's exposure to lead are encouraged to contact the Tooele County Health Department at 435-843-2310. They offer free blood lead testing for children.

An Information Repository containing the Administrative Record and other information about the site is available at the Tooele Public Library. The EPA wants to hear from citizens who have questions or concerns about this site.

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Site Documents

[November 2007 Fact Sheet](#) (PDF, 4 pp, 197 kB)

[Record of Decision \(ROD\), September 2007](#) (PDF, 84 pp, 344 kB)

[ROD Figures](#) (PDF, 5 MB)

[ROD Tables](#) (PDF, 627 kB)

[ROD Photos](#) (PDF, 530 kB)

[March 2007 Fact Sheet](#) (PDF, 4 pages, 228 kB)

[ISR Proposed Plan And Public Comment Notice - June 2007](#) (PDF, 12 pages, 1.1 MB)

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Contacts

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Utah Department of Environmental Quality <http://www.utah.gov/region8/superfund/ut/intntnlsmelt/>

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[Region 8 Home](#)

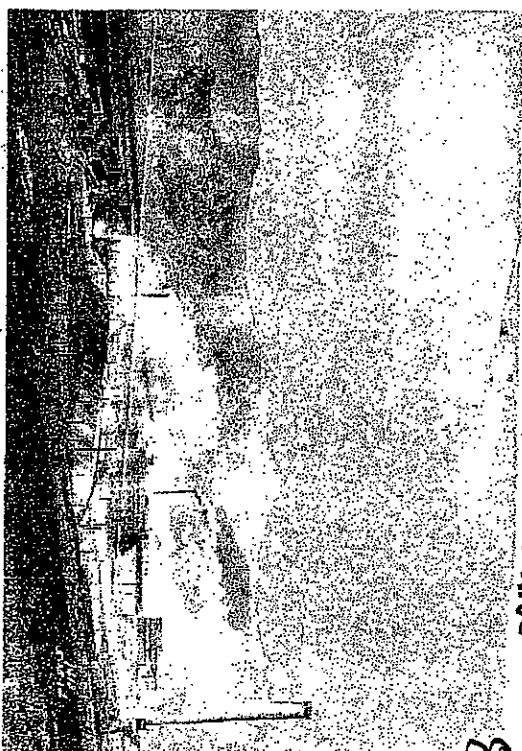
Last updated on Wednesday, July 8th, 2009.

WCMS

Notes:

International Smelting and Refining
Environmental Protection Agency
Superfund Site

Informational Booklet



*Attachment
8a.*

Original IS&R Smelter, 1912

Tooele County Health Department
151 North Main Street
Tooele, Utah 84074
(435) 277-2440
www.tooelehealth.org



Introduction

The International Smelting and Refining Company site was placed on the National Priority List in July of 2000. Atlantic Richfield Company, a potentially responsible party at the site, is conducting studies to characterize waste on and around the site. Atlantic Richfield and the regulatory agencies will evaluate a variety of clean up options.

This booklet provides a brief site history and discusses the hazardous wastes associated with the site. It describes what activities **ARE** and **ARE NOT** acceptable on the site. Community members are encouraged to be knowledgeable about their surroundings.



(Area photo taken Aug. 2002)

Links & Resources

For more information about the IS&R and/or the Carr Fork Mine Operations, the following websites can give you more detail:

Environmental Protection Agency narrative discussion about the IS&R and Carr Fork history can be found at:

www.epa.gov/region08/superfund/sites/lnsmult.html

To read more about the Superfund Sites in the State of Utah visit:

www.epa.gov/region08/superfund/sites/ut/ut_sf.html

For more information about Arsenic visit:
www.atsdr.cdc.gov/facts2.html

For more information about Lead visit:
www.atsdr.cdc.gov/facts13.html

Health Concerns

Arsenic:

What it is:

- A naturally occurring element distributed in the earth's crust

How humans are exposed:

- Eating food, drinking water, or breathing air, which contains arsenic
- Breathing sawdust or burning smoke from wood treated with arsenic
- Living near uncontrolled hazardous waste sites containing arsenic
- Living in areas with unusually high natural levels of arsenic in the rock

Potential Health effects:

- Sore throat or irritated lungs
- Excessively high amounts are fatal
- Lower amounts cause nausea & vomiting
- Decreased production of red blood cells
- Abnormal heart rhythm
- Sensation of "Pins and Needles" in hands & feet
- Small "corns" or "warts" on the body
- Redness and swelling
- Increases the risk of different types of cancer

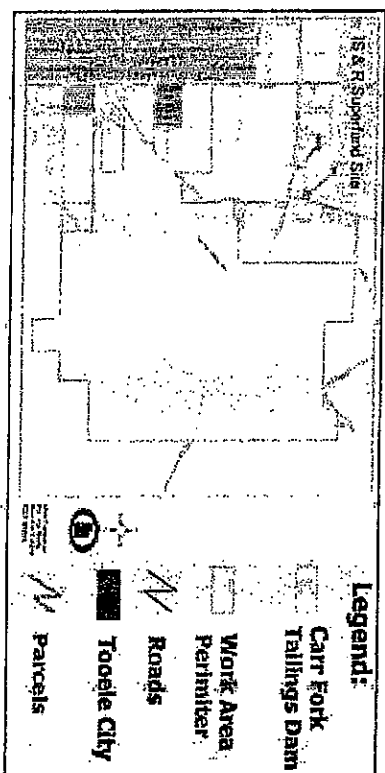
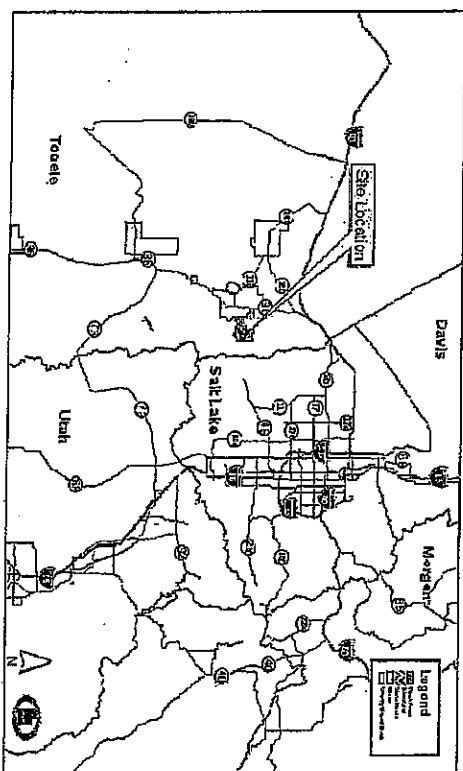
To find out if you have been exposed:

- Get tested - health care providers can test for arsenic

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Map



Health Concerns

Lead

What it is:

- A naturally occurring metal found in the earth's crust & all parts of the environment. Lead is found in some fossil fuels. It's also found in mining and manufacturing.

How humans are exposed:

- Eating contaminated foods
- Spending time in areas where lead-based paints have been used and are deteriorating
- Working in a job where lead is used
- Using health-care products or folk remedies, which contain lead

Potential Health effects:

- Most sensitive is the central nervous system in children
- Damages kidneys & reproductive system
- At high levels, decreases reaction time
- Weakness in fingers, wrist, & ankles
- Possibly affects memory
- Connection between health effects and exposure to low levels of lead is uncertain

To find out if your children have been exposed:

- The Tooele County Health

Department is offering free blood lead testing for children. Call (435) 843-2310 for an appointment.



12-
Sampling (continued)

Homes			
Arsenic in Soil (ppm)			
Depth	Minimum	Maximum	Average
0-2"	7	150	42
Arsenic Dust in the home			
	10	30	21

Open Fields near Pine Canyon			
Lead in Soil (ppm)			
Depth	Minimum	Maximum	Average
0-2"	130	1990	583
Lead in Sediments			
0-2"	20	1800	590
2"-6"	35	1600	461

Open fields near Pine Canyon			
Arsenic in Soil (ppm)			
Depth	Minimum	Maximum	Average
0-2"	20	200	81
Arsenic in Sediment			
0-2"	14	330	83
2-6"	10	210	71

International Smelting & Refining Co. Site History

In the early 1900's, when International Smelting and Refining (IS&R) began looking for a place to build a smelter, the mouth of Pine Canyon in the Tooele Valley was considered ideal. It was believed that predominant westerly winds would carry stack emissions up the canyon and away from Tooele City. It was also thought to be an ideal site because it was near large ore (copper) supplies. In addition, it was near the main-line railroad. Ore from the east side of Oguth Mountain was brought to the site by aerial tramway and the 4.36 mile long Elton Tunnel. The original IS&R operations consisted of approximately 1200 acres of land located on a broad bench at the mouth of Pine Canyon. The Carr Fork Milling Operations were located on 12.5 acres within Pine Canyon.

Copper, lead, and zinc ore mining and processing occurred over a period of about 70 years. Historically, the site included:

- Mine workings
- Mill site
- Tailings impoundment
- Landfill area
- Smelter area
- Slag pile
- Settling pond

Refining operations began in 1910. From 1910 through 1972, IS&R operated a copper and lead smelter. In the early years, tailings, slag, and flue dust were produced at an annual rate of 650,000 tons per year.

During this time, 326 acres of tailings were covered or disposed of on site. The copper smelter was closed in 1946. The lead smelter was closed in 1972, and was demolished during the years 1972 - 1974.

In 1974, Anaconda constructed and operated a copper mine and mill known as the "Carr Fork Operations". It was located just east of the IS&R Smelter Site in Pine Canyon. It was in operation from 1974 - 1981. (Atlantic Richfield purchased Anaconda in 1977). As part of the Carr Fork Operation, a new tailings dam along the western edge of the original tailing site was constructed.

The mine stopped production in November 1981, while Anaconda waited for copper prices to rise. When this did not happen, the processing facilities were torn down, sold, and removed from the property in late 1984.

The Carr Fork Operation property was sold to Kennecott Copper in October 1985. This included the mine and mill along with several acres of land east of the smelter site. It excluded the settling and tailing ponds, currently owned by Atlantic Richfield.

Sampling

Sampling was conducted in 2002 to identify any contaminants in the land and surface water.

Atlantic Richfield has provided to the Environmental Protection Agency summaries of soil sediment along with surface and ground water sampling.

On-site samples were taken from various locations and soil depths. Water samples were taken from streams. Eight residential samples were taken which included:

- soil samples from the yard
- dust sample from inside the home

Sampling Results

(Samples are expressed in parts per million. This booklet contains residential sampling only. Results of all sampling are available at the TCHD Environmental Health Office at 151 North Main Street in Tooele (435) 843-2340.)

Homes: (0-2" depth)			
LEAD in Soil (ppm)			
Minimum	Maximum	Average	
33.6	1100	360	
Lead Dust in the home			
93	310	190	

An action level to determine any remediation measures will be determined by the Environmental Protection Agency in the spring of 2003.

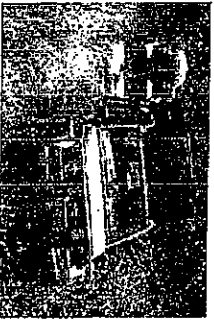
Prohibited Activities

To preserve the land, topsoil, and vegetation, the following activities are **not allowed** in the conservation area:

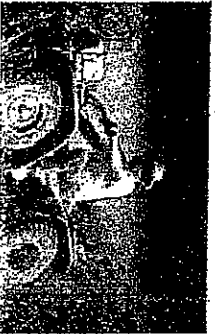
- Motorized vehicles
- Motorcycles
- ATV's and other recreational equipment
- Bicycles
- Livestock grazing
- Swimming or wading
- Fires
- Dumping or leaving garbage

The land, topsoil, and vegetation are monitored closely. ATV's, motorcycles, dirt bikes and other recreational vehicles are not allowed.

No motorized vehicles
(trucks, cars, campers, etc)



No ATV's or other off road vehicles



No Motorcycles



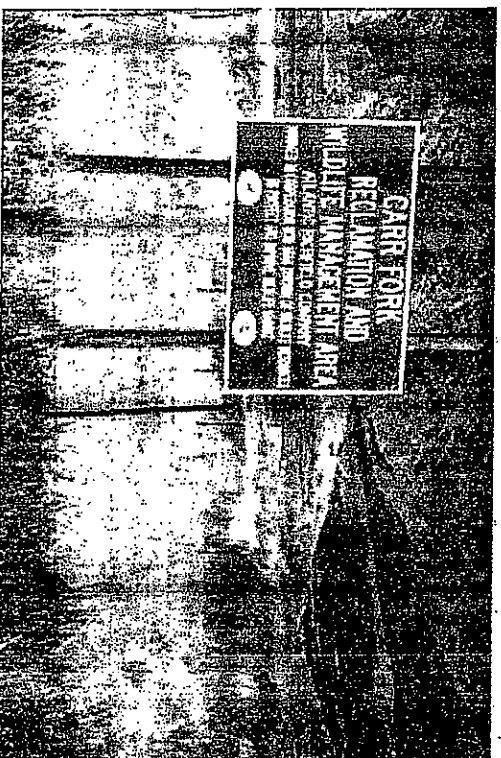
No bikes



Reclamation

The Utah Mined Land Reclamation Act of May 1975 required reclamation (clean-up) of the Carr Fork Operations. The IS&R smelter was considered "pre-law" which means it did not legally have to be cleaned up. However, during 1986 - 1987 Atlantic Richfield (who purchased Anaconda in 1977) voluntarily included both areas (IS&R and the Carr Fork Operations) in its reclamation work to control any potential risks to humans and the environment.

As part of a Reclamation/Stabilization Plan, Atlantic Richfield demolished all the buildings on-site, consolidated and isolated waste, graded the site with uniform slopes to minimize erosion, and planted a vegetated cover. After the reclamation effort, Atlantic Richfield entered into a conservation easement agreement with the Utah Division of Wildlife Resources to manage the site for wildlife habitat and conservation values.



Current Land Use & Recreation

Currently, the site and surrounding areas are being managed as a wildlife conservation area. To encourage wildlife to use the area in winter, the Carr Fork Reclamation and Wildlife Management Area is closed to public access from December 1 through April 15th.



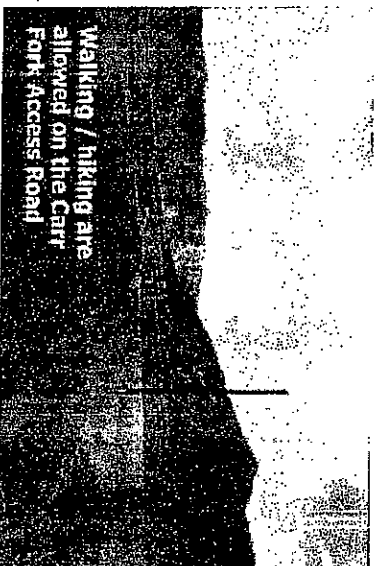
Not included in the conservation portion are two shooting ranges:

- A small pistol range is leased from Atlantic Richfield to the City of Tooele
- A shotgun range is leased from Atlantic Richfield to the Tooele Gun Club

Motorized vehicles are permitted within the gun club parcels only.

Approved activities

- Walking & jogging on the site and along the Carr Fork access road
- Wildlife observation
- Hunting (with hunting dogs) during the respective hunting seasons
- Pets will be allowed along the Carr Fork access road as long as they are on a leash and owners pick up their pets fecal material and dispose of it appropriately off site.



Walking / hiking are allowed on the Carr Fork Access Road

For more information about allowed recreation use, please contact the Utah Division of Wildlife Resources, Central Region Habitat Manager at 1115 North Main Street, Springville, Utah 84663. (Phone: 801-491-5678.)

Attachment #7
#9

GATEWAY SEGMENT ACTION PLANS

Walla Walla to McNary – Segment A

Originally planned as a single circuit 230 kV transmission line approximately 56 miles in length between Wall Walla, Washington and Umatilla, Oregon that connects existing substations at Walla Walla, Wallula, and McNary. The initial target completion date was 2010; however, additional information became available in early 2009 that prompted the decision to defer moving forward with the current project scope in 2009.

PacifiCorp acquired the Chehalis generation plant in late 2008 and on February 13, 2009 redirected 470 MW of transmission rights to the Mid Columbia area. Existing transmission rights between Yakima and Walla Walla allow a portion of the Chehalis resources to cover any Walla Walla short resource position. This minimizes any net power costs benefits from the prior economics that showed Hermiston generation located in Oregon displacing Mid-Columbia purchases and serving Yakima and Walla Walla loads during short supply periods.

Over the next six to twelve months, PacifiCorp is actively participating in transmission plans and system rating processes impacting the Northwest, and these plans are expected to mature and possibly influence PacifiCorp's Westside Plan. At that time, the Company will determine any additional transmission needed in the Walla Walla / McNary area. PacifiCorp will continue to evaluate the project and incorporate the analysis with regional transmission needs.

Populus to Terminal – Segment B

A double circuit 345 kV line that will run approximately 135 miles from a new substation (Populus) near Downey, Idaho to the existing Terminal Substation near Salt Lake International Airport west of Salt Lake City, Utah. When completed in 2010, this segment will improve reliability along a critical transmission corridor (Path C) and provide additional transfer capability of energy resources both south bound and north bound. It will also provide a vital link for Energy Gateway path ratings.

Mona to Limber to Oquirrh – Segment C

A single circuit 500 kV line that will run approximately 65 miles between the existing Mona Substation in central Utah to a future substation called Limber in the Tooele Valley, west of Salt Lake City, Utah. It will also include a double circuit 345 kV line that will run approximately 21 miles between the future Limber Substation to an existing substation called Oquirrh in the Salt Lake valley. When completed in 2012, it provides a critical northbound path for additional resource whether internally generated or purchased through market transactions. It will also provide a vital link for reliability and Energy Gateway path ratings.

Oquirrh to Terminal

A double circuit 345 kV line that will run approximately 14 miles between the Oquirrh Substation to an existing Terminal Substation near Salt Lake International Airport west of Salt Lake City, Utah. When completed in 2012, it will add operational flexibility to the bulk electrical system, improved reliability and will provide a vital link for Energy Gateway path ratings.