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ENVIRONMENTAL PROTECTION

May 7, 2008

VIA CERTIFIED MAIL, RETURN RECEIPT

Jim Najima
Chief, Board of Corrective Actions
NEVADA DIVISION OF ENVIRONMENTAL PROTECTION
Department of Conservation & Natural Resources
901 South Stewart Street, Suite 4001
Carson City, NV 89701

Re: Vapor Intrusion from Contaminated Groundwater
Maryland Square PCE Plume, Las Vegas, Nevada
NDEP ID#: H-000086
Our File No.: 5062.0000

Dear Mr. Najima:

We are writing on behalf our clients, as class representatives of all homeowners who own residences affected by the Maryland Square PCE Plume, in order to obtain some additional information and clarification regarding recent communications issued by the Nevada Division of Environmental Protection (NDEP) on the necessity and means of abating intrusion of vapors from the groundwater plume. Our clients are very concerned regarding the lack of transparency and the lack of opportunity for community involvement in this process, which directly affects their lives, health and properties. There has been little information shared regarding the technical basis for the decisions that are being made by NDEP, as well as for the representations made by NDEP regarding the threat to human health posed by the indoor air PCE vapors. We look forward to your prompt response to the serious issues raised below.

LOS ANGELES

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1.0 BACKGROUND

The former Al Phillips the Dry Cleaner ("Al Phillips") operated at 3661 Maryland Parkway in the Maryland Square Shopping Center in Las Vegas, Nevada ("the Site") from 1969 through 2000. Records indicate that various pieces of tetrachloroethene (PCE) dry cleaning equipment, including two Realstar and one Union dry cleaning machines, were operated at the Site. The former building leased by Al Phillips was demolished in July and August of 2006. Currently, the Site is surrounded by temporary fencing and an unlocked gate. The former building foundations remain, along with several 50 gallon drums that apparently contain waste from site investigations conducted by Al Phillips' environmental consultants in our clients' neighborhood. Hydraulically downgradient of the Site is the residential neighborhood where our clients reside.

In August 2000, as part of a property transaction investigation, soil and groundwater samples were collected during the installation of monitoring well MW-1 near the Site. The groundwater sample from monitoring well MW-1 revealed PCE at 2,300 micrograms per liter ($\mu\text{g}/\text{l}$), above the drinking water maximum contaminant level (MCL) for PCE of 5 $\mu\text{g}/\text{l}$. Subsequent investigations were conducted in October 2000 and included installing five additional monitoring wells (MW-2 through MW-6) at the Boulevard Mall, located to the east and across South Maryland Parkway from the Site.

The release of PCE from the Site was first reported on November 29, 2000 via the NDEP's spill reporting hotline. The NDEP received the first environmental report on Site conditions eight months later in July 2001. After reviewing the report, NDEP determined that the levels of PCE "did not pose an immediate health concern." In November 2001, NDEP requested Maryland Square Shopping Center, LLC, the owner of the Site at the time, to submit a work plan within 45-days for investigations to determine whether the PCE had migrated offsite. In March 2002, the Maryland Square Shopping Center property was sold to the Clark County School District, which owned the Site for approximately three and a half years, until the Site was sold to the current owner, Maryland Square, LLC on our about September 19, 2005.

In September 2002, consultants working on behalf of Maryland Square Center, LLC installed six monitoring wells (MW-7 through MW-12) near the Site and at the Boulevard Mall to the east.

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Laboratory analysis of the groundwater samples from the monitoring wells revealed the highest concentration in the sample from the downgradient area across South Maryland Square Parkway (monitoring well MW-2). In December 2002, based on the results, the NDEP requested a work plan for monitoring and remediation of the onsite and offsite PCE impacted groundwater, installation of an additional monitoring to the north of MW-2, and identification of the location of the onsite sanitary sewer lines. However, due to the lack of progress, NDEP sent a follow-up letter to Maryland Square Center, LLC in April 2003 restating the requests from the December 2002 letter with the addition of a requirement to submit a Corrective Action Plan within 45 days (May 18, 2003).

On May 16, 2003, consultants working for Maryland Square Center, LLC submitted a work plan for the additional investigation of groundwater and the location of the sanitary sewer of the dry cleaning facility. On June 27, 2003, Converse Consultants, working for the Maryland Square Center, LLC, submitted a Preliminary Corrective Action Plan that recommended testing of soil vapor extraction (SVE) to address impacted onsite soil, ozone sparging to address onsite groundwater, and use of hydrogen releasing compound (HRC) for offsite groundwater. NDEP approved the Corrective Action Plan with conditions that included that the pilot studies would be completed by October 30, 2003, that a final corrective action plan be prepared following the pilot studies, and that concerns of potential oxidation by-products from use of ozone sparging be addressed.

However, approximately two-years later, in October 2005, consultants working on behalf of Al Phillips wrote to NDEP and stated that there were "data and technical obstacles to preparing a CAP [Corrective Action Plan]" and requested an additional 180 days to complete the Corrective Action Plan. On August 23, 2006, NDEP advised the successors to Al Phillips, DCI Management Group, Ltd. (DCI) that "...several corrective action work plans have been approved for this site by NDEP...to date corrective actions has [sic] not been implemented...and dissolved PCE impacts continue to migrate further down gradient...Additionally, all impacted property owners, commercial and private, must be notified of site associated activities, such as assessment and remediation." NDEP's letter further requested a "plan for public notification to include all impacted residential properties." However, no such plan or public notification was ever provided by Al Phillips or its successor, DCI.

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NDEP requested a meeting with NDEP in September 2006 to discuss the schedule for implementation of corrective actions. In November 2006, URS Corporation (URS) submitted a Source Removal Corrective Action Plan that included additional subsurface investigations to delineate the lateral and vertical extent of PCE, development of site-specific cleanup levels, and a cost/benefit analysis of corrective actions to address source material. NDEP approved the Source Removal Corrective Action Plan in their December 18, 2006 letter and indicated that work on the "on-site cleanup is scheduled to begin in March 2007, pending NDEP concurrence on the remedy." NDEP also indicated that DCI would also conduct soil gas sampling in off-site areas downgradient of the Site beginning in January 2007.

Soil gas sampling was conducted in the areas downgradient of the Site and within our clients' residential neighborhood in March 2007. Consultants working on behalf of Al Phillips advanced 16 borings and collected 36 soil gas samples from multiple depths in each of the borings. PCE was reported to be present in soil gas up to 170,000 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). The highest concentration was found in the sample collected from boring SVB-14 at 20-feet below ground surface. In general, concentrations were higher at depth, i.e., closer to the groundwater table. However, at several locations, e.g., SVB-03, SVB-05 and SVB-10, concentrations of PCE were higher closer to the ground surface indicating a potential source of PCE is present above the groundwater.

In May 2007, once again due to lack of progress on the investigation and remediation, DCI was advised that "NDEP plans to move forward with investigation and mitigation, expending state funds as determined to be necessary as provided by Nevada Revised Statutes (NRS) 459.755." Subsequently, DCI has continued with investigation activities including groundwater monitoring. Groundwater monitoring results have shown that the dissolved PCE groundwater plume beneath the study area is approximately 550 feet wide for the western portion of the plume, but wider along Spencer Street, just west of the golf course, and at least 4,000 feet long. The plume is generally centered (east-west) along Seneca Lane, and extends both east and west of the study area for this assessment. The concentration of dissolved PCE in groundwater collected from the study area has ranged from 350 micrograms per liter ($\mu\text{g}/\text{l}$) to 5,300 $\mu\text{g}/\text{l}$. However, 7-1/2 years after the discharge was first reported to NDEP, DCI has still not

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implemented any corrective actions to address the PCE in the subsurface.

Based on the March 2007 soil gas sample results, NDEP conducted indoor air sampling in our clients' residential neighborhood in September and October 2007. The first notification to the homeowners of the existence of the plume beneath their homes was sent by NDEP on or about August 27, 2007. NDEP offered to conduct indoor air sampling for homeowners in the residential area downgradient of the Site. One Summa canister was reportedly placed inside the homes for a 24-hour composite sample. The results from the first round of indoor air sampling were reported to the homeowners on November 28, 2007.

The results revealed PCE inside homes up to 110 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$).

On June 19, 2007, NDEP notified (1) Al Phillips/DCI, (2) the Herman Kishner Trust, and (3) Maryland Square, LLC that NDEP considered them potentially responsible for the PCE soil and groundwater contamination caused by releases from the Site. NDEP's letter further advised these PRP's that it planned to direct each former owner or operator to take actions to address the investigation and remediation of the contamination.

2.0 NDEP SPRING 2008 UPDATE

In the Spring of 2008, NDEP issued its "Information Update for the Maryland Square PCE Site Maryland Square PCE Site," ("Spring Update"). Based on discussions with our clients and consultants, several questions and concerns have been raised by statements made in this publication. The issues of concern focus primarily on the nature of the health risk posed by the chemicals as represented by the NDEP, the protectiveness of NDEP's "action level," the adequacy of the remedy and the lack of opportunity for community input. Our questions and concerns are summarized below with selected excerpts from the Spring Update.

2.1 Background Levels of PCE in Indoor Air

In the Spring Update, NDEP stated that most of the homes with detections of PCE in indoor air "were within the range of background as defined by several national studies." NDEP informed the public that concentrations of PCE in indoor air "generally range from 1 to 10 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$)

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of air, but seldom above 10 $\mu\text{g}/\text{m}^3$." The source(s) of these "several national studies" on background concentrations of PCE in indoor air were not provided in NDEP's Spring Update.

However, similar representations were made in NDEP's January 2008 response to "Frequently Asked Questions" ("FAQs") publication, which provided reference to two studies as a basis for identifying indoor air background concentrations of PCE in homes downgradient of Al Phillips, i.e., "March 1988 USEPA Volatile Organic Compounds (VOCs) Database" and USEPA sampling in 1994 to 1996 of 100 public and private offices. NDEP's FAQ publication stated "United States Environmental Protection Agency (US EPA) analyzed information on PCE levels in indoor and outdoor air samples collected inside and outside of buildings that were not near known sources of PCE and other chemicals. The middle half (25th to 75th percentile) of concentrations in indoor and outdoor air samples was about 1 to 10 $\mu\text{g}/\text{m}^3$."

First, we do not believe that these two studies constitute "several national studies." The first study is a 20-year old USEPA database of background levels, which doesn't appear to be a reasonable basis to represent to the public what background levels would be in their homes today in the absence of the contamination from Al Phillips. The second study, which only included data from 100 office buildings in 1994 to 1996, is also not an appropriate basis for representation of conditions that are found in residential structures in 2008.

It is unclear why NDEP is using a 20-year old database, especially considering the reductions in ambient air concentrations of toxic air contaminants since the Clean Air Act Amendments of 1990. Not surprisingly, the USEPA Volatile Organic Compound Database from 2003 contains background values up to **30 times lower** than those from 20-years ago. The 2003 database reports a median background concentration of PCE of 0.237 $\mu\text{g}/\text{m}^3$ and the middle half (25th to 75th percentile) ranging from 0.1665 $\mu\text{g}/\text{m}^3$ to 0.3391 $\mu\text{g}/\text{m}^3$, rather than the 1 $\mu\text{g}/\text{m}^3$ to 10 $\mu\text{g}/\text{m}^3$ represented by the NDEP in their Spring Update.

The citations used by the NDEP are outdated and, as such, grossly misleading. We request that NDEP update its disclosures to the public accordingly and make more accurate and appropriate representations regarding "background levels" of PCE in the affected homes. If NDEP is not willing to make such revisions, we request an explanation why it isn't necessary to revise the

information it has provided to the public to conform to current USEPA published data.

2.2 Results of Recent Indoor Air Testing

NDEP's Spring Update indicates that the sampling of more than 75 homes and two schools revealed, "a few homes contained concentrations of PCE that exceeded NDEP's health-protective level of 32 $\mu\text{g}/\text{m}^3$." However, our review of the recently produced indoor air sampling results reveals that fifteen (15) homes, (not "a few homes") had results above NDEP's "action level." Further, a review of the analytical laboratory data revealed that NDEP's lab set a "reporting limit" for PCE concentrations at 5.5 $\mu\text{g}/\text{m}^3$ to 6.8 $\mu\text{g}/\text{m}^3$. This means that if a result from a home was above the USEPA's PRG of .32 $\mu\text{g}/\text{m}^3$, but below the "reporting limit" of at least 5.5 $\mu\text{g}/\text{m}^3$, homeowners received a letter from NDEP advising them that "PCE was not detected in your indoor air sample." These statements by NDEP to homeowners were grossly misleading, and failed to advise them if PCE vapors existed in their homes above the Preliminary Remediation Goal of .32 $\mu\text{g}/\text{m}^3$ established by USEPA Region IX. A reporting limit of 5.5 $\mu\text{g}/\text{m}^3$ is approximately 17% higher than USEPA's PRG of .32 $\mu\text{g}/\text{m}^3$.

It appears that NDEP's lab used the modified EPA method TO-15 GC/MS to analyze the air samples for PCE. This method is less expensive and less sensitive than EPA method TO-15 SIMS, which can detect PCE concentrations down to the level of the USEPA PRG of .32 $\mu\text{g}/\text{m}^3$. Despite the artificially high "reporting limit" used by NDEP, approximately 42 of the 104 homes sampled by NDEP had PCE concentrations above the reporting limit of at least 5.5 $\mu\text{g}/\text{m}^3$. This equates to approximately 43% of the homes sampled by NDEP. We strongly suspect that if NDEP had used the more sensitive testing method, 100% of the homes would have had PCE concentrations above the USEPA Region IX PRG of .32 $\mu\text{g}/\text{m}^3$.

Given that the USEPA does not recommend the use of indoor air sampling to quantitatively evaluate indoor air risks from subsurface vapor intrusion, we are very concerned that NDEP is inappropriately relying on a single indoor air sample to determine whether conditions exist in a home which warrant taking actions to protect public health. If there are supporting technical or statutory bases to support NDEP's use of the single indoor air samples, please provide them to us to assist us in advising our clients. In lieu of such information, we offer the

following comments and questions on the indoor air sampling performed by the NDEP.

2.2.1 Reliability of Data

The USEPA advises, "it should be recognized the indoor data are useful for order of magnitude estimates only."¹ The USEPA goes on to warn that indoor air "monitoring cannot, except in unusual cases, provide pollutant concentrations due to site impacts because of the variability in types and strengths of indoor sources."² Published studies "on temporal variability in indoor air quality shows concentrations with a range of a factor of 2-5 for 24-hour samples."³ If single indoor air samples are used, the Interstate Technical and Regulatory Council (ITRC), a national coalition of regulatory agencies and environmental professionals, advises "a factor of safety (at least a factor of 5) should be used to adjust for short-term fluctuations before comparing results to risk-based target concentrations." Due to these acknowledged variations, exterior monitoring, i.e., soil gas sampling "is suggested as the primary on-site technique for assessing the site related indoor air impacts on specific structures."⁴ Soil gas samples allow estimates of indoor air concentrations without the necessity of dealing with building-specific air flow patterns and indoor pollutant sources.

Despite these generally understood limitations regarding the reliability of indoor air quality data, NDEP has advised the community that only homes containing concentrations greater than NDEP's self-determined "action level" need mitigation systems installed. Since it is the PCE in the soil gas beneath the homes that is the threat to indoor air, it is not reasonable to conclude without site-specific soil gas data, whether the threat to indoor air from PCE vapors at a home is lower or higher than its neighbor, irrespective of indoor air sample results. Given

¹ USEPA, *Assessing Potential Indoor Air Impacts for Superfund Sites* (USEPA, 1992)

² Ibid.

³ Interstate Technical and Regulatory Council, *Technical and Regulatory Guidance, Vapor Instruction Pathway: a Practical Guideline*, January 2007. (ITRC, 2007). p. D-19.

⁴ Ibid.

the potential unreliability of the single samples of indoor air, we recommend that NDEP base conclusions regarding the threat to human health posed by indoor air vapors on the measurements of PCE in soil gas following appropriate USEPA guidance.

2.3 NDEP's Health-Protective Level for PCE in Indoor Air

NDEP has advised the community that it has set "its action level for indoor air mitigation (32 $\mu\text{g}/\text{m}^3$) on the evaluation of the U.S. EPA." We would like to receive a copy of the USEPA evaluation cited by the NDEP. It is our understanding that the USEPA has traditionally set the cleanup standards for releases of PCE at levels **100 times lower** than those referenced by the NDEP.

For example, the USEPA Region IX Preliminary Remediation Goals (PRG) identify an ambient air level of 0.32 $\mu\text{g}/\text{m}^3$ for PCE, based on an incremental lifetime cancer risk (ILCR) of one excess cancer risk per million persons exposed. It would appear that NDEP has set its "action level" for addressing the threat to indoor air posed by the subsurface PCE at one ILCR per 10,000 exposed, i.e., **NDEP's "action level" of 32 $\mu\text{g}/\text{m}^3$ is 100 times higher than USEPA's 0.32 $\mu\text{g}/\text{m}^3$ PRG for protection of inhalation of PCE at the one in one million excess cancer risk.** NDEP's selection of the 1 in 10,000 excess cancer risk action level does not appear consistent with USEPA's 2002 Draft Subsurface Vapor Intrusion guidance,⁵ which identifies that to "determine if a chemical is sufficiently toxic to potentially pose an unacceptable inhalation risk," the vapor concentrations are "compared to target indoor air concentrations corresponding to an incremental lifetime cancer risk greater than 10^{-6} ," or one excess cancer per million exposed.⁶

It is interesting to note that NDEP's letter to DCI, dated October 9, 2006, specifically relied upon USEPA's PRG for PCE concentrations in residential soil samples, and yet NDEP has chosen to ignore the PRG for ambient air established by USEPA in the very same publication NDEP cited to DCI in that letter. If NDEP is relying upon USEPA PRG's for residential soil samples, why then is NDEP not following USEPA PRG's for ambient air concentrations of PCE?

⁵ USEPA, OSWER *Draft Guidance on Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion)*, (EPA530-D-02-004), November 2002. (USEPA, 2002).

⁶ Ibid.

2.3.1 Lack of Nevada Statutory Basis for Indoor Action Levels

Further, we find no basis in either Nevada or federal law that supports the selection of the 1 in 10,000 excess cancer risk as the "action level." In our discussions, you have indicated that the "action level" is not a final cleanup number, but is being used by NDEP as an "interim cleanup value." However, Nevada Administrative Code (NAC) Section 445A.22605 specifically defines "Action level" as "the level of concentration of a hazardous substance, hazardous waste or a regulated substance in soil, groundwater or surface water that is established pursuant to NAC 445A.2272, 445A.22735 and 445A.2275 and for which corrective action may be required by the Director." While this particular section of the NAC applies to soil, groundwater and surface water, we expect that NDEP is using the term as defined in the NAC. However, we have not found an analogous NAC section for establishment of action levels for indoor air. In the absence of such statutory support, it would appear incumbent on the NDEP to rely on the federal regulations, which pursuant to the National Oil and Hazardous Substances Contingency Plan ("NCP;" 40 CFR Part 300) it has the authority to implement.

If NDEP is to follow the NCP, it should also follow the USEPA's guidance on establishing preliminary remediation goals for protection of public health. In particular, as outlined in the preamble to the NCP, the USEPA's preference, "all things being equal, is to select remedies that are at the more protective end of the risk range."⁷ Therefore, when developing its remediation goals, the USEPA uses the one in a million excess cancer risk "as a point of departure." What this means on a practical basis is the USEPA will use an individual lifetime excess cancer risk of one in a million "as a point of departure for establishing remediation goals for the risks from contaminants at specific sites." As also explained in the preamble to the NCP, it was not the USEPA's intent to set the point of departure at the upper end of the risk range, as is being done by NDEP. The upper end of the risk range, the 1 in 10,000 excess cancer risk, is to be considered as a potential upper bound that would need to be justified based on "site- or remedy-specific factors," not as a starting point.

Given the uncertainty in the adequacy of the indoor air sampling and the nature of the ongoing risk to the community, we would expect NDEP to choose an "action level" at the lower end of

⁷ 55 Federal Register 8666. March 8, 1990. p. 8716.

the risk range, i.e., one in one million incremental lifetime cancer risk. If NDEP has supporting bases for the selection of its "action level," we request that those be made available immediately.

2.3.2 Inappropriate Use of OSHA Standard

In the Spring Update, NDEP advised the residential community that the concentrations of PCE in indoor air "are still far lower than concentrations that are known to produce immediate short-term health effects." NDEP specifically references that the "Occupational Safety and Health Administration (OSHA) 8-hour occupational exposure standard is 685,000 $\mu\text{g}/\text{m}^3$ [emphasis in original]."

We are concerned that NDEP is implying that detections of PCE in indoor air above the PRG established by USEPA are not harmful, and that the residents should be comparing the reported concentrations to the OSHA standard. NDEP's use of the OSHA standard for evaluating residential risk appears to be at odds with the USEPA, which identifies in its November 2002 Draft Subsurface Vapor Intrusion guidance that worker exposure is different than passive residential exposure as "workers will generally understand the workplace (e.g., Occupational Safety and Health Administration, OSHA) regulations (and monitoring, as needed) that already apply and provide for their protection [and]... workplaces are subject to a written Hazard Communication and Monitoring Plan." The USEPA also proffers "[i]t should be noted that at CERCLA sites, the cleanup levels are generally determined either by ARARs or risk range considerations; the OSHA standards are not ARARs under the CERCLA statute and regulations."⁸ Further, NDEP apparently has ignored the fact that many residents are elderly and have occupied their homes for decades, raising concerns about the chronic nature of their exposure.

Given the USEPA's clarifying statements that OSHA standards are not applicable to residential exposures nor cleanup levels, we would expect that NDEP would revise its fact sheets to provide more appropriate references, e.g., USEPA Region IX PRG for residential ambient air of 0.32 $\mu\text{g}/\text{m}^3$.

⁸ Ibid.

2.3.3 Timeframe for Exposures

In its January 2008 FAQs, NDEP reported that it "will soon mandate the responsible parties" undertake cleanup and that a groundwater remediation system would be installed "within a year or two." NDEP also stated that it "anticipates that it will take 5 to 10 years to adequately clean up the shallow groundwater under the neighborhood, but the remediation system will prevent any new PCE from migrating under the neighborhood." While we hope that NDEP's estimates are accurate, based on discussions with our technical experts and the lack of progress over the past 7-1/2 years, we are concerned that NDEP may be overly optimistic. In particular, it is not clear that NDEP has considered that the PCE may be present as a dense non-aqueous phase liquid (DNAPL).

Typically, dissolved chemical concentrations in groundwater samples greater than one percent of the aqueous solubility of the chemical are considered "highly suggestive" of DNAPL presence by the USEPA.⁹ As the aqueous solubility of PCE is 150,000 µg/l,¹⁰ one percent of the aqueous solubility of PCE is 1,500 µg/l. Therefore, following the "DNAPL rule of thumb," PCE concentrations in groundwater samples greater than 1,500 µg/L are "highly suggestive" of DNAPL presence.

Groundwater samples collected from eight groundwater-monitoring wells at the former dry cleaner and downgradient in the residential neighborhood, have been reported to contain PCE concentrations in excess of 1,500 µg/l with samples from: MW-1 up to 3,500 µg/l; MW-2 up to 3,000 µg/l; MW-6 up to 2,400 µg/l; MW-13 up to 5,310 µg/l; MW-14 up to 3,500 µg/l; MW-18 up to 2,400 µg/l; MW-20 up to 2,100 µg/l and MW-23 up to 2,100 µg/l.¹¹ Given these detections, it appears likely that PCE may be present as a DNAPL beneath the Site and downgradient neighborhood.

The difficulty in timely remediation of groundwater with DNAPLs is well documented. DNAPLs can be extremely difficult to

⁹ USEPA, September 1994. *DNAPL Site Characterization, Office of Solid Waste and Emergency Response, Publication 9355.4-16FS*, (USEPA, 1994). p.11.

¹⁰ Cohen, R.M. and Mercer, J.W., 1993. *DNAPL Site Evaluation*, CRC Press, Boca Raton, FL, (Cohen and Mercer, 1993). Table A-1, p. A-5

¹¹ URS, 2008. *Quarterly Groundwater Sampling, Fourth Quarter 2007*, Maryland Square Shopping Center, 3661 South Maryland Parkway, Las Vegas, Nevada. January 16, 2008.

locate in the subsurface and small amounts of DNAPL can contaminate large volumes of an aquifer. Due to these effects it is understood that "DNAPL phase in the vadose and groundwater zones at many sites probably represents sufficient chemical mass to cause dissolved plumes to **persist for centuries** or longer [emphasis in original]." ¹² Therefore, it would appear appropriate for NDEP to be more circumspect in providing representations to the public as to how fast they should expect to see cleanup of the groundwater occur, especially to the extent that the PCE is present as a DNAPL.

2.4 NDEP Plans for Home Mitigation Systems

NDEP has indicated that the "recommended technology" to address the intrusion of PCE to indoor air is the use of sub-slab depressurization (SSD) systems. However, it is our understanding that the USEPA recommends soil vapor extraction (SVE) "as the presumptive remedy for sites where volatile organic compounds (VOCs) are present in soil and treatment is warranted." ¹³ USEPA states that presumptive remedies are "expected to be used at all appropriate sites except under unusual site-specific circumstances." In fact, the ITRC advises that the "best way to ensure that subsurface contamination does not enter homes or other structures is to remove and/or destroy the toxic compounds." ¹⁴ Why then is NDEP advising the public that installation of the SSD system is the recommended technology to address the threat to indoor air from PCE in soil gas? Has NDEP performed testing to evaluate SVE or an analysis to establish the most effective means to address the PCE in soil gas beneath the homes?

Further, our clients are concerned the installation of the SSD systems will not address the source of the problem, just the symptom. SVE is a proven technology, which is why the USEPA has identified it as the recommended approach to address VOCs in soil and soil gas. SSD systems, while used for many years to address radon, have been used on a limited basis to address indoor air

¹² Pankow, J. and Cherry, J.A., *Dense Chlorinated Solvents and other DNAPLs in Groundwater*, 1996 p.459.

¹³ USEPA, *User's Guide to the VOCs in Soils Presumptive Remedy*, Directive No. 9355.0-63FS, EPA 540/F-96/008, PB 96-963308, July 1996. (USEPA, 1996).

¹⁴ ITRC, 2007. p. A-3.

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intrusion of VOCs. It is our understanding that the design, installation and operation of the SSD systems require expertise and experience to avoid creating adverse conditions for the residents. Our review of the limited information provided to the community regarding the SSD systems has prompted many questions, which should be answered prior to installation of the SSD systems.

2.4.1 Design of the Sub-Slab Depressurization Systems

The primary performance standard, which should be used to confirm effective SSD system operation, is the demonstration of a negative pressure field (vacuum) under the entire floor slab. It is unclear from the information provided in the Spring Update who has designed the sub-slab depressurization (SSD) system and what design criteria were used, e.g., design vacuum level, venting rate, etc. for the SSD systems. We request a copy of the design documents be made available for our review before any system is installed on their properties by NDEP or its contractors.

Can you please advise what design elements have been included in the SSD system by NDEP to address the potential for "backdrafting"? Specifically, oil/gas furnaces and wood stoves/fireplaces vent combustion gases to the ambient air, typically by directing the gases up a chimney. It is our understanding that backdrafting can occur if negative pressures within a building are stronger than the density differential, which drives the combustion gases up the chimney. In such cases, potentially deadly combustion gases (e.g., carbon monoxide) could be discharged into the building. Can you please advise how this is addressed in the SSD system design?

In addition, how does the design of the SSD system address "short-circuiting" problems? It is our understanding that where cracks, holes, sumps, or annulus spaces in the building foundation/slab disrupt a negative pressure field, the impact is to actually drop the pressure within the house and hence actually increase the vapor flux to the interior, i.e., short-circuit, which would result in PCE vapors being drawn into the homes.

The operation of the SSD systems, as a function of air temperature and dew point, will result in condensation of soil moisture. What design elements have been incorporated to address condensation from the soil gas vapors? Can you advise how the condensate from the SSD systems will be handled/disposed? What testing will be required of the condensate prior to discharge?

Who will be responsible for the discharge of the potentially PCE-containing condensate?

If designed and operated properly, it is our understanding that the vent piping will contain VOCs under positive pressure during system operation, which in the event of a failure could leak contaminated soil gases into the building if the piping is installed internally. How does the design address the potential failure of vent piping? Is there an alarm system to advise of failures? What actions would be required and who would take them in the event of a failure? Alternatively, if the SSD vent piping is located outside the building, how will it be insulated to protect it from corrosion, ultraviolet light deterioration, freezing and/or cracking?

2.4.1.1 SSD System Vapor Emissions

NDEP has indicated in its Spring Update that vapors will be vented "to the outdoor air, where concentrations are quickly diluted to low levels in the outdoor air." Based on some initial calculations, our consultants have identified that NDEP's installation of SSD systems on just 25 homes venting PCE at 100,000 µg/m³ at 25 cubic feet per minute, could result in over 1,000 pounds per year of PCE vapors being emitted into the community. What analysis has the NDEP conducted of the impact on neighbors, downwind schools, etc. of the PCE being released via the SSD system vents? How "quickly" will the emitted vapors be "diluted to low levels"? What will the PCE levels be in ambient air after dilution?

How many pounds per year of PCE vapor can be emitted safely? At what concentration is it safe to emit PCE vapor to the ambient air? Is a discharge permit required for the SSD systems? If so, who is to obtain one? Are there treatment requirements for the off-gas from SSD systems? If so, who is responsible for the cost of the treatment and monitoring? These questions need to be answered prior to installation and operation of the SSD systems to make sure conditions are not made worse by the NDEP's proposed remedy.

2.4.2 Installation of the SSD Systems

NDEP advised that it "evaluated the credential of a list of quality contractors and has obtained bids" for the installation of SSD systems. What criteria were used by NDEP to "qualify" the contractors? What information, specifications, etc. were

included in the request for bids from the contractors? Who is going to supervise the installation of the SSD systems? Will the contractors hired by the NDEP provide indemnification to the homeowners for any personal injury or property damage and maintain Worker's Compensation insurance? Who is going to execute the access agreements, NDEP or its contractors? Is a copy of the access agreement available for review? Will individual access agreements be negotiated with each homeowner? Who will pay for the electricity to power the unit for the expected lifetime of the SSD system?

What pre-installation inspections are being conducted? If cracks in the concrete slabs are to be sealed, what chemicals will be used? Will the sealing chemicals contain VOCs? Who will pay for damage to remove existing floor coverings to access the concrete slab? What material and equipment guarantees are the contractors providing to the homeowners? How long is the equipment expected to last? Will the contractors have an obligation to troubleshoot and/or repair the SSD systems? If so, for how long?

2.4.3 Monitoring of the SSD Systems

As noted above, the effectiveness of the SSD systems is predicated on maintaining a lower pressure beneath the floor slab than in the houses. When SSD systems are installed in other locales, there is usually an in-line pressure gauge or manometer that must be installed on every unit.¹⁵ If a manometer is not installed, what means will be used to monitor the differential pressure between the interior of the homes and the area beneath the floor slabs?

It is our understanding that the recommended diagnostic testing of SSD systems is conducted by drilling small diameter holes through the floor slab, applying a vacuum to one hole, and measuring pressure drops at surrounding test holes.¹⁶ Will such post-installation testing be conducted? After installation, how will the vacuum be monitored? Will monitoring be conducted (e.g. monthly or quarterly) to document SSD system operation in

¹⁵ Massachusetts Department of Environmental Protection, (MADEP), *Guidelines for Design, Installation and Operation of Sub-Slab Depressurization Systems*, December 1995. (MADEP, 1995).

¹⁶ Ibid.

accordance with performance standards? Who should the homeowners contact regarding problems with the SSD systems?

2.4.4 Cost Recovery for Installation of the SSD Systems

NDEP indicates that it will be seeking reimbursement from the Potentially Responsible Parties ("PRP"). Who has NDEP identified as PRP's? Given the recent court decisions linking liability to chemical and equipment companies, has NDEP identified these entities as responsible parties? What Nevada or federal statute basis is being used to identify PRP's?

In previous communications to Al Phillips/DCI, Herman Kishner Trust and Maryland Square, LLC, NDEP indicated that it would be seeking cost recovery for its efforts pursuant to Section 459.755 of the Nevada Revised Statutes (NRS), i.e., Use of Contingency Account for Hazardous Materials to pay for costs of cleaning and decontamination of area affected by spill or accident.

It is our understanding that NRS 459.755 only allows for expenditures of state funds to address conditions that present "an imminent and substantial hazard to human health, public safety, any property or the environment." This would appear to be at odds with representations made by NDEP to the public that there is "no immediate health concern for residents." Can you please clarify whether conditions do pose an imminent and substantial hazard or not? If the presence of PCE in indoor air does pose an imminent and substantial hazard, then why has NDEP issued several publications to the community stating the contrary? If, on the other hand, the presence of PCE in indoor air does not pose an imminent and substantial hazard, then what alternative cost recovery mechanism will NDEP use?

Given the limitations of the NDEP's proposed cost-recovery mechanism, it is not clear why NDEP is not seeking cost recovery pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Can you please advise why NDEP is not requiring the work be conducted pursuant to CERCLA?

2.5 Public Participation

While NDEP has provided information regarding the investigation and findings, our clients have not been given an opportunity for public comment before decisions have been made.

The NCP is the blueprint that parties must follow in selecting a remedial action plan and cleaning up releases of hazardous substances under CERCLA.¹⁷ As part of the site investigation and remedial action selection process, the NCP requires an opportunity for public comment and participation.¹⁸ However, no such opportunity for public participation has occurred with regard to the NDEP selection of a remedy for PCE vapors in indoor air within residences near the former location of Al Phillips.

The USEPA has stated that "meaningful public participation" is "integral" to ensuring the proper completion of a CERCLA-quality cleanup.¹⁹ The NCP sets forth specific standards designed to involve the public in decisions affecting the cleanup of hazardous sites.²⁰ Among other things, these standards call for development of a community relations plan prior to beginning field work for the remedial investigation²¹ and preparation of a community development plan designed to "ensure the public appropriate opportunities for involvement in a wide variety of site-related decisions, including...selection of remedy."²²

Further, the NCP also calls for publication of notice of the proposed remedial plan in a major local newspaper of general circulation, with a 30-day comment period.²³ With regard to the Maryland Square PCE Plume: (1) a community relations plan has not been developed nor prepared; (2) public notice of the proposed remedial plan for the plume has not appeared in a major local newspaper of general circulation; and (3) most important the public has not been provided an opportunity for meaningful input into the consideration of remedial alternatives for PCE vapors in indoor air within residences.

¹⁷ 42 U.S.C. § 9605

¹⁸ 40 CFR § 300.700(c) (5) (vii-viii), (c) (6)

¹⁹ 55 Federal Register, p. 8793

²⁰ 40 CFR §300.700(c) (6)

²¹ 40 CFR §300.430(c) (2) (i)

²² 40 CFR §300.430(c) (2) (ii)

²³ CFR §330.430(f) (3)

Overall, our clients would like more input into the process. Our clients have indicated that they would like their concerns to be addressed by the NDEP. Our clients uniformly complain that their messages left on NDEP's "dedicated, resident call-in line for the Maryland Square PCE site" go unanswered by NDEP. Despite our numerous requests and representations made to NDEP staff, there has been no consideration of the public in this process and it is our concern that this has been to the detriment of our clients and ultimately to the implementation of an appropriate, cost-effective and safe remedy. We welcome the opportunity to discuss these concerns with you further.

3.0 SUMMARY

In summary, our concerns are:

- NDEP has grossly understated the nature of the risk to human health posed by PCE vapors by referring the community to inappropriate standards like OSHA worker protection levels and 20-year old data on background PCE concentrations, and omitted current USEPA data and publications;
- NDEP has selectively adopted USEPA Preliminary Remediation Goals ("PRG") for PCE concentrations in residential soil samples, and yet ignored the USEPA PRG for ambient air samples in our clients' homes, and instead created its own "action level", which is 100 times higher than the USEPA criteria;
- NDEP has grossly misrepresented to homeowners that "PCE was not detected in your indoor air sample", when in fact NDEP used a "reporting limit" that was at least 17% higher than USEPA Region IX's PRG of .32 µg/m³;
- The regulatory and legal authority to justify NDEP's "action level" has not been provided;
- NDEP's "action level" of 1 excess cancer per 10,000 persons exposed is not adequately protective and is 100 times higher than the USEPA Region IX PRG for residential ambient air;
- A single indoor air sample is inappropriately being used by NDEP to select which homes need to have the SSD systems installed;
- Representations regarding the length of time the cleanup will take have not considered the presence of non-aqueous

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- Representations regarding the length of time the cleanup will take have not considered the presence of non-aqueous phase PCE (DNAPL), nor the lack of progress in the preceding 7-1/2 years;
- The cumulative impacts of the installation and operation of SSD systems have not been evaluated or explained;
- No information has been provided on the operation, monitoring and/or maintenance of the SSD systems;
- The statutory basis for cost recovery have not been adequately explained, nor do they appear appropriate; and
- There has been a lack of adequate opportunity for community input.

Very truly yours,

ROBERTSON & VICK, LLP



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