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**Overview: Neuropsychiatric Effects of Solitary Confinement**

My observations and conclusions regarding the psychiatric effects of solitary confinement have been cited in a number of federal court decisions, for example: Davenport v. DeRobertis, 844 F.2d 1310, and Madrid v. Gomez, 889F.Supp.1146. I prepared a written declaration for Madrid describing the medical literature and historical experience concerning the psychiatric effects of solitary confinement and of other conditions of restricted environmental and social stimulation. I have prepared the general (non-institution specific) and non-redacted (non-inmate specific) portions of that declaration into a general Statement, which I have entitled "Psychiatric Effects of Solitary Confinement"; a copy of this statement is attached hereto. It describes the extensive body of literature, including clinical and experimental literature, regarding the effects of decreased environmental and social stimulation, as well as specifically, observations concerning the effects of solitary confinement on prisoners. I offer here a general overview of the issue:

It has long been known that severe restriction of environmental and social stimulation has a profoundly deleterious effect on mental functioning; this issue has, for example, been a major concern for many groups of patients including, for example, patients in intensive care units, spinal patients immobilized by the need for prolonged traction, and patients with impairment of their sensory apparatus (such as eye-patched or hearing impaired patients). This issue has also been a very significant concern in military situations and in exploration - polar and submarine expeditions, and in preparations for space travel.

In regard to solitary confinement, the United States was actually the world leader in introducing prolonged incarceration - and solitary confinement - as a means of dealing with criminal behavior; the "penitentiary system" began in the United States in the early 19th century, a product of a spirit of great social optimism about the possibility of rehabilitation of individuals with socially deviant behavior. This system, originally embodied as the "Philadelphia System", involved almost an exclusive reliance upon solitary confinement as a means of incarceration, and also became the predominant mode of incarceration - both for post conviction and also for pretrial detainees - in the several European prison systems which emulated the American model.

The results were catastrophic. The incidence of mental disturbances among prisoners so detained, and the severity of such disturbances, was so great that the system fell into disfavor and was ultimately abandoned. During this process, a major body of clinical literature developed which documented the psychiatric disturbances created by such stringent conditions of confinement. The paradigmatic disturbance was an agitated confusional state which, in more severe cases, had the characteristics of a florid delirium, characterized by severe confusional, paranoid and hallucinatory features, and also by intense agitation and random, impulsive violence - often self-directed.

**EXHIBIT C**

The psychiatric harm caused by solitary confinement became exceedingly apparent. Indeed, by 1890, in In re Medley, 10 S.Ct. 384, the United States Supreme Court explicitly recognized the massive psychiatric harm caused by solitary confinement: "This matter of solitary confinement is not ... a mere unimportant regulation as to the safe-keeping of the prisoner .... [E]xperience [with the penitentiary system of solitary confinement]demonstrated that there were serious objections to it. A considerable number of the prisoners fell, after even a short confinement, into a semi-fatuous condition, from which it was next to impossible to arouse them, and others became violently insane; others still, committed suicide; while those who stood the ordeal better were not generally reformed, and in most cases did not recover sufficient mental activity to be of any subsequent service to the community." 10 S.Ct. at 386.

The consequences of the Supreme Court's holding were quite dramatic for Mr. Medley. Mr. Medley had been convicted of having murdered his wife. Under the Colorado statute in force at the time of the murder, he would have been executed after about one additional month of incarceration in the county jail. But in the interim between Mr. Medley's crime and his trial, the Colorado legislature had passed a new statute which called for the convicted murderer to be, instead, incarcerated in solitary confinement in the State Prison during the month prior to his execution. Unhappily, simultaneously with the passage of the new law, the legislature rescinded the older law, without allowing for a bridging clause which would have allowed for Mr. Medley's sentencing under the older statute.

Mr. Medley appealed his sentencing under the new statute, arguing that punishment under this new law was so substantially more burdensome than punishment under the old law, as to render its application to him *ex post facto*. The Supreme Court agreed with him, even though it simultaneously recognized that if Mr. Medley was not sentenced under the new law, he could not be sentenced at all. Despite this, the Court held that this additional punishment of one month of solitary confinement was simply too egregious to ignore; the Court declared Mr. Medley a free man, and ordered his release from prison.

Dramatic concerns about the profound psychiatric effects of solitary confinement have continued into the twentieth century, both in the medical literature, and in the news. The alarm raised about the "brainwashing" of political prisoners of the Soviet Union and of Communist China - and especially of American prisoners of war during the Korean War - gave rise to a major body of medical and scientific literature concerning the effects of sensory deprivation and social isolation, including a substantial body of experimental research.

This literature, as well as my own observations, has demonstrated that, deprived of a sufficient level of environmental and social stimulation, individuals will soon become incapable of maintaining an adequate state of alertness and attention to the environment. Indeed, even a few days of solitary confinement will predictably shift the electroencephalogram (EEG) pattern towards an abnormal pattern characteristic of stupor and delirium.

This fact is, indeed, not surprising. Most individuals have at one time or another experienced, at least briefly, the effects of intense monotony and inadequate environmental stimulation. After even a relatively brief period of time in such a situation, an individual is likely to descend into a mental torpor - a "fog" - in which alertness, attention and concentration all become impaired. In such a state, after a time, the individual becomes increasingly incapable of processing external stimuli, and often becomes "hyperresponsive" to such stimulation; for



example, a sudden noise or the flashing of a light jars the individual from his stupor, and becomes intensely unpleasant. Over time, the very absence of stimulation causes whatever stimulation is available to become noxious and irritating; individuals in such a stupor tend to avoid any stimulation, and progressively to withdraw into themselves and their own mental fog.

An adequate state of responsiveness to the environment requires both the ability to achieve and maintain an attentional set - to focus attention - and the ability to shift attention. The impairment of alertness and concentration in solitary confinement leads to two related abnormalities

The inability to focus, to achieve and maintain attention, is experienced as a kind of dissociative stupor - a mental "fog" in which the individual cannot focus attention, cannot, for example, grasp or recall when he attempts to read or to think.

The inability to shift attention results in a kind of "tunnel vision" in which the individual's attention becomes stuck - almost always on something intensely unpleasant - and in which he cannot stop thinking about that matter; instead, he becomes obsessively fixated upon it. These obsessional preoccupations are especially troubling. Individuals in solitary easily become preoccupied with some thought, some perceived slight or irritation, some sound or smell coming from a neighboring cell, or - perhaps most commonly, by some bodily sensation - tortured by it, unable to stop dwelling on it. I have examined countless individuals in solitary confinement who have become obsessively preoccupied with some minor, almost imperceptible bodily sensation, a sensation which grows over time into a worry, and finally into an all-consuming, life-threatening illness.

In solitary confinement, ordinary stimuli become intensely unpleasant, and small irritations become maddening. Individuals in such confinement brood upon normally unimportant stimuli, and minor irritations become the focus of increasing agitation and paranoia.

Individuals experiencing such environmental restriction find it difficult to maintain a normal pattern of daytime alertness and nighttime sleep. They often find themselves during the day incapable of resisting their bed - incapable of resisting the paralyzing effect of their stupor - and yet incapable at night of any restful sleep. The lack of meaningful activity is far compounded by the effect of continual exposure to artificial light, and diminished opportunity to experience natural daylight. And the individuals' difficulty in maintaining a normal day-night sleep cycle is often far worsened by the constant intrusions on nighttime dark and quiet - steel doors slamming shut, flashlights shining in their face, and so forth.

There is, of course, substantial differences in the effects of solitary confinement upon different individuals. Those most severely affected are generally individuals with evidence of subtle neurological or attention deficit disorder, or with some other vulnerability; this includes, for example, individuals with psychopathic personality disorders, who appear to experience a chronic underarousal of their central nervous system, leading them to have a pathological need for external stimulation. When such particularly vulnerable individuals are exposed to conditions of solitary confinement, they are especially likely to descend into states of florid psychotic delirium, marked by severe hallucinatory confusion, disorientation, and even incoherence, and by intense agitation and paranoia; these psychotic disturbances often have a dissociative character, and individuals so affected often do not recall events which occurred

during the course of the confusional psychosis. Other individuals - generally, individuals with more stable personalities and greater ability to modulate their emotional expression and behavior, and individuals with stronger cognitive functioning - are less severely affected. However, all of these individuals will still experience a degree of stupor, difficulties with thinking and concentration, obsessional thinking, agitation, irritability and difficulty tolerating external stimuli (especially noxious stimuli).

EEG studies have corroborated these findings. Such studies, using volunteers, have demonstrated that even after a few days of solitary confinement, the EEG will characteristically shift in the direction of stupor and delirium. Moreover, one study from the Balkan conflict demonstrated that even after release from solitary confinement, there are continuing EEG abnormalities; the EEG shows excessive spike reaction to environmental (in that case, visual) stimulation. In other words, the "hyperresponsivity to external stimuli" which is found clinically in individuals exposed to solitary confinement, is also seen in EEG recordings, and this disturbance continues for some unknown period of time after release from solitary.